Vol. 918 Number 1

OFFICIAL GAZETTE

of the
UNITED STATES PATENT OFFICE

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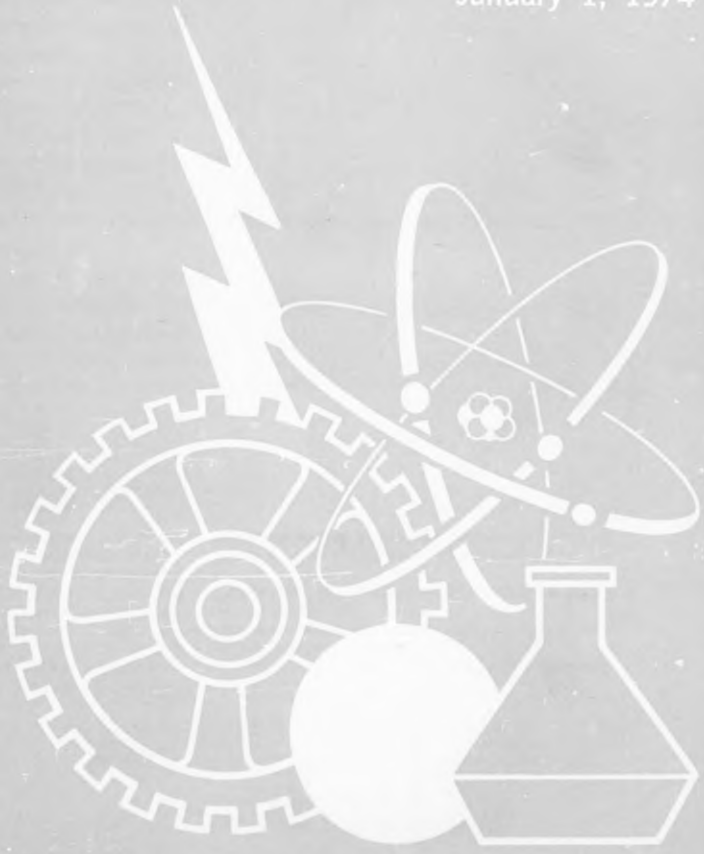
PATENTS

January 1, 1974



U. S. DEPARTMENT OF COMMERCE

Patent Office

PUBLISHED WEEKLY BY AUTHORITY OF CONGRESS

OFFICIAL GAZETTE of the UNITED STATES PATENT OFFICE

January 1, 1974 Volume 918 Number 1

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The following are mailed under direction of the Superintendent of Documents, Government Printing Office, Washington, D.C., 20402, to whom all subscriptions should be made payable and all communications addressed:

THE OFFICIAL GAZETTE (PATENTS SECTION), issued weekly, subscription $211.00 per annum, foreign mailing $52.75 additional; single copies $4.10 each.

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CIRCULARS OF GENERAL INFORMATION concerning PATENTS or TRADEMARKS, price 15 cents each.

PRINTED COPIES OF PATENTS are furnished by the Patent Office at 50 cents each; PLANT PATENTS in color, $1.00 each; copies of TRADEMARKS and DESIGN PATENTS at 20 cents each. Address orders to the Commissioner of Patents, Washington, D.C., 20231.

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CONSOLIDATED LISTING OF RECENT OFFICIAL GAZETTE NOTICES RE PATENT OFFICE PRACTICES AND PROCEDURES

PATENT SECTION

The following is a compilation of the more important notices and rules changes which have been published in the OFFICIAL GAZETTE *from July 1, 1964, through December 31, 1973. These notices and rules changes are currently in effect except as otherwise noted, and are published as a part of our "Better Service to the Public" program.*

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INFORMATION AND CORRESPONDENCE

(1) INFORMATION RE APPLICATION STATUS

In view of the relatively long pendency of patent applications at the present time, the final disposition of which may, in some cases, be of substantial importance to the public in general or, at least, to persons other than the applicants, it has been decided effective immediately to advise any person who makes written request for information as to the status of a United States application referred to by number in a foreign patent, which patent is identified in the request, whether the application is pending, abandoned or patented and, if patented, what the patent number is. The former practice of giving similar information with respect to an application referred to by number in a United States patent (Manual of Patent Examining Procedure, section 102) will be continued.

EDWARD J. BRENNER,
Dec. 11, 1964. *Commissioner of Patents.*

[809 O.G. 1293]

(2) TELEPHONE NUMBERS ON OFFICE ACTIONS

Effective immediately, the full surname of the Examiner who prepares the Office action will, in all cases, be typed below the action on the left side. The Examiner's telephone number will be typed below his name. This number should be called if the case is to be discussed or an interview arranged.

The Notice of December 10, 1964, 810 O.G. 308, and Change Notice 2–15 are rescinded.

RICHARD A. WAHL,
Apr. 5, 1965. *Superintendent, Patent Examining Corps.*

[813 O.G. 1099]

(3) EXPEDITING PAPERS RELATING TO APPEALS

In order to expedite the handling and processing of all papers relating to appeals, it is essential that all such documents include the Group Number to which the application is assigned, as well as the Appeal Number and Serial Number.

EDWIN L. REYNOLDS,
May 8, 1965. *First Assistant Commissioner.*

[815 O.G. 417]

(4) TELEPHONE NUMBERS ON AMENDMENTS AND OTHER PAPERS

In view of the increased use of telephone interviews regarding matter which can be readily cleared up by a telephone call to applicant or his representative, it is again recommended that amendments and other papers, such as letters of transmittal, include the complete telephone number with area code and extension, preferably near the signature of the writer.

RICHARD A. WAHL,
Mar. 11, 1966. *Assistant Commissioner.*

[825 O.G. 1]

(5) ZIP CODE REMINDER

By Executive Memorandum of June 18, 1965, President Johnson directed all Federal Agencies to take the lead in adopting the ZIP Code system and instructed the Postmaster General to issue regulations governing the use of ZIP Codes by such agencies.

Pursuant to this directive, Section 137.26 has been added to the Postal Manual requiring compliance by Federal Agencies as follows:

1. Effective January 1, 1966, official mailings containing typed or handwritten addresses must include the ZIP Code.
2. Effective January 1, 1967, all Federal Agencies must use the ZIP Code in the addresses on *all* official mail and are required to presort quantity mailings by ZIP code.

TO THIS END, ALL FUTURE LETTERS, COUPONS, AND OTHER PAPERS BEARING THE SENDER'S ADDRESS WHICH ARE MAILED TO THE PATENT OFFICE MUST SHOW THE ZIP CODE DESIGNATION OF BOTH THE SENDER AND THE PATENT OFFICE.

The Patent Office ZIP Code is 20231. This designation should be used when writing to the Patent Office for any matter. In addition, the sender's own ZIP Code designation should be given. The benefits to be gained by the immediate use of ZIP Code are many: positive identification of areas; faster delivery of mail by reducing the number of handlings from point of origin to destination; and easier identification of post office address.

C. A. KALK,
Mar. 22, 1966. *Director of Administration.*

[825 O.G. 428]

(6) HAND DELIVERY OF DUPLICATE COPY OF PAPERS BY ATTORNEY

The Notice appearing in 833 O.G. 1 is hereby superseded. The practice set out in the above notice is extended as follows:

In further implementation of the Notice in 829 O.G. 1755 concerning discontinuation of the practice of hand delivery by attorneys or others of officially date stamped papers, it is directed that prompt consideration and appropriate action be taken on the hand-delivered duplicate copy of such papers, which may include amendments, powers to inspect, requests for extension of time, etc.

The effect of such consideration and action should be communicated to applicant or his representative at the earliest practicable time to clarify the status of the case.

If requested, at the conclusion of an interview, it would be appropriate to indicate on the attorney's copy and the Office duplicate copy any agreement reached and to initial and date both copies.

Actual clerical entry of amendatory matter usually will require the presence in the file of the original paper; however, pending receipt of the original, examiner and clerical processing of the application should proceed, based on the duplicate copy, as far as practicable in the circumstances of each case.

RICHARD A. WAHL,
Dec. 21, 1966. *Assistant Commissioner.*

[834 O.G. 829]

(7) HAND DELIVERY OF PAPERS

The notice of November 10, 1969 (869 O.G. 345), regarding Hand Delivery of Papers is modified as indicated below.

The privilege of personal delivery of papers by applicants, their attorneys or agents to the Examining Groups is hereby extended to include any paper which relates to a pending application file. Under this procedure the paper will be date stamped with the Group stamp and made an official paper in the file, thereby avoiding the necessity of processing and forwarding to the Examining Group via the Mail Room. The approval and initials of the examiner will no longer be necessary for delivering papers directly to the Group. In those instances where an additional fee is required, the paper will be date stamped by the clerk, hand carried, together with the check or letter of authorization to charge a Deposit Account, to the Finance Branch for processing and then made an official paper in the file.

This procedure will be re-evaluated after it has been in effect for a period of six months.

RICHARD A. WAHL,
Sept. 8, 1970. *Assistant Commissioner.*

[879 O.G. 667]

(8) ATTACHMENTS TO OFFICE ACTIONS

To expedite the preparation and mailing of certain Office actions, the following changes in practice are effective July 1, 1967:

Where references are furnished, applicant's copies of the Office action will be camera reproductions of the ribbon copy instead of the usual carbon copies. The list of reference citations, heretofore typed directly on the action, will be on a separate form, Notice of References Cited, PO–892, attached to applicant's copies of the action.

The manner of furnishing copies of the references remains unchanged.

About Aug. 1, 1967, the use of attachments to the Office action will be extended to include notification of informalities in the application and drawings. Where applicable, Notice of Informal Patent Drawings, PO–948, and Notice of Informal Patent Applications, PO–152 (rev.) will be attached to the first action.

The attachments will bear the same paper number and are to be considered as part of the action.

Replies to Office actions should include the 3-digit Art Unit number to expedite handling within the Office.

RICHARD A. WAHL,
June 29, 1967. *Assistant Commissioner.*

[840 O.G. 711]

APPENDIX A

(9) PUBLIC INFORMATION APPENDIX—PATENT OFFICE

A. *Purpose.*

The purpose of this Appendix is to describe, in general, the public information services of the Patent Office, to describe the places at which and the methods whereby the public may obtain information, make submissions or requests or obtain decisions, to inform the public as to the sources or availability of rules, regulations, procedures, forms, instructions, or other requirements of the Patent Office, which affect the public, and otherwise to comply with the requirements of Section 552 of Title 5, U.S.C. as amended by Public Law 90–23, June 5, 1967 (81 Stat. 54).

B. *Public Information Services.*

(1) The Patent Office provides the public with a wide range of information relating to the organization, structure, description, and functions of the Patent Office. This includes material published regularly on a weekly basis, such as the OFFICIAL GAZETTE, and copies of the patents and trademark registrations identified therein. General information concerning the procedures for obtaining patents or registering trademarks, and for utilizing the search rooms and Scientific Library of the Patent Office is readily available.

(2) Publications of the Patent Office are listed in the catalog of publications sold by the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C., 20402. They are also listed in the Introduction of the "Rules of Practice of the United States Patent Office in Patent Cases," and in the pamphlet "General Information Concerning Patents." The Patent Office also publishes a circular "Patent Office Publications," which lists the available publications, and provides information as to price and source. These publications include:

a. Annual Index of Patents.
b. Decisions of the Commissioner of Patents.
c. Manual of Patent Classification, and Classification bulletins.
d. Patent Laws (pamphlet edition).
e. Directory of Registered Patent Attorneys and Agents Arranged by States and Cities.
f. Guide for Patent Draftsmen.

(3) The Patent Office has an Office of Information Services where the public may obtain a list of current publications and general information concerning the functions and services of the Patent Office. Information relating to patents may be obtained from the Patent Reference Branch of the Office of Patent Services, and information relating to trademarks may be obtained from the search room of the Trademark Examining Operation.

C. *Guide to Published Rules and Regulations.*

(1) Patent Office rules of procedure, descriptions of forms, substantive rules of general applicability, and statements of general policy are published in the Federal Register. Rules are currently codified in Title 37, Chapter I, Code of Federal Regulations, and are also available in pamphlet form entitled "Rules of Practice of the United States Patent Office in Patent Cases" and "Trademark Rules of Practice of the Patent Office with Forms and Statutes," each of which is for sale by the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C., 20402.

(2) The Patent Office maintains also an administrative staff manual, entitled "Manual of Patent Examining Procedure," and an index thereto, for the general guidance of its staff and the public. The manual, with its index, as amended, changed, and supplemented from time to time, is available in the Patent Office (the Public Search Room and Library) for inspection and copying, and copies are for sale by the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C., 20402.

D. *Submission of Requests and Applications.*

The established places at which and the methods whereby the public may make requests concerning Patent Office functions, operations, and procedures are listed in Sections B and C of this Appendix.

E. (*Reserved*).

F. *Inspection and Copying of Opinions and Orders.*

(1) Final opinions and orders in the adjudication of patent cases, statements of policy and interpretations, and other material required to be made available for public inspection and copying under 5 U.S.C. 552(a)(2) are made available for such purposes in the search room of the Patent Reference Branch in the Main Commerce Building, 14th Street between Pennsylvania Avenue and Constitution Avenue, NW., Washington, D.C., 20231, readily accessible from the entrance on E Street near 14th Street. Instructions concerning the use of this facility are contained in the introductory portion to the pamphlet edition of the Rules of Practice in Patent Cases, and the pamphlet "General Information Concerning Patents."

(2) Final opinions and orders in the adjudication of trademark cases, statements of policy and interpretations, and other material required to be made available for public inspection and copying under 5 U.S.C. 552(a)(2) are made available for such purposes in the search room of the Trademark Examining operation in the Longfellow Building, 1741 Rhode Island Avenue, NW., Washington, D.C., 20231, from 8:00 a.m. to 6:00 p.m. on workdays only. Instructions concerning trademark operations are contained in the pamphlet "General Information Concerning Trademarks."

G. *Inspection of Bureau Records.*

(1) Applications for patents are required by law to be kept in confidence by the Patent Office and no information concerning such applications may be divulged by the Patent office without authority of the applicant or owner, unless necessary to carry out the provisions of any Act of Congress or in such special circumstances as may be determined by the Commissioner (35 U.S.C. 122).

(2) Special situations are recognized by the regulations (37 C.F.R. 1.11 and 1.14; Manual of Patent Examining Procedure, section 103), which prescribe the procedures to be followed in the opening of certain patent applications to inspection.

(3) Assignment records, digests, and indexes (37 C.F.R. 1.12) relating to patent applications are not available to the public.

(4) Pending trademark applications are not open to general inspection (37 C.F.R. 2.27).

(5) The procedures for requesting records not disclosed to the public as part of the regular informational activities of the Patent Office, or not included in the material described in Section F, supra, or whose disclosure is not provided for or precluded by the regulations cited in paragraphs (1), (2), (3) and (4) of this section, are prescribed in 37 C.F.R. 1.15.

EDWARD J. BRENNER,
Date: Sept. 12, 1967. *Commissioner of Patents.*

Published in 32 F.R. 13830, Oct. 4, 1967

[843 O.G. 1567]

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(10) POST CARD RECEIPT REMINDER

Applicants and their attorneys or agents are reminded of the provision in Section 717.01(a) of the Manual of Patent Examining Procedure relating to the use of post cards as "receipts" of papers filed in the Patent Office.

If a receipt for any paper filed in the Patent Office is desired, it may be had by enclosing with the paper a self-addressed post card identifying the paper. The Patent Office will stamp the receipt date on the card and place it in the outgoing mail.

The identifying data on the card should be so complete as to match the paper with the application or other document to which it is to be associated. For example, the document should be identified by the applicant's name(s), Serial No., filing date, appeal number, interference number, etc., and the paper should be identified by specifying the type thereof, viz, affidavit, amendment, appeal, application papers, brief, drawings, fees, motions, supplemental oath or declaration, petition, etc.

When papers for more than one document are filed under a single cover a return post card should be attached to the paper for *each* document for which a receipt is desired.

RICHARD A. WAHL,
Nov. 21, 1968. *Assistant Commissioner.*

[857 O.G. 667]

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(11) OFFICE ACTION—FIRST PAGE FORM

The printed form POL–326 formerly used as the first page of the first Office action, 845 O.G. 1205, has been revised.

The new form is now being attached to all Office actions up to and including final rejections.

RICHARD A. WAHL,
Jan. 22, 1969. *Assistant Commissioner.*

[859 O.G. 677]

(12) OFFICIAL PATENT OFFICE MAILING ADDRESS REMAINS WASHINGTON, D.C.

The official mailing address for all communications sent to the Patent Office remains:

Commissioner of Patents
Washington, D.C. 20231

Any telegrams sent to the Patent Office must also bear the above identical address.

The physical location of the Patent Office is 2021 Jefferson Davis Highway, Arlington, Virginia. This address must not be used when addressing mail to the Patent Office.

No reference to Crystal Plaza, Virginia, should be made in the address of *any* communication intended for delivery to the Patent Office by the Post Office Department or Western Union.

Compliance with this instruction will help prevent any unnecessary delay in the delivery of mail, telegrams, etc.

C. A. KALK,
Feb. 20, 1969. *Director of Administration.*

[860 O.G. 662]

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(13) ORDERS FOR COPIES OF FOREIGN PATENTS AND/OR PUBLISHED APPLICATIONS

Some foreign countries are not publishing their patents and/or applications in numerical order. Since the U.S. Patent Office will begin supplying orders for copies of these foreign documents from master microfilm reels made up on weekly or other periodic publishing sequences, effective immediately all orders must include the country, patent or application number, and the publication date (if known) of the ordered document. Reference should be made to Section 901.05(a) of the Manual of Patent Examining Procedure to assist in determining the publication date of the commonly encountered foreign patents and applications.

W. R. ARMSTRONG,
Aug. 21, 1969. *Director, Office of Patent Services.*

[866 O.G. 685]

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(14) GROUP NUMBER SHOULD APPEAR ON COMMUNICATIONS RELATING TO PENDING APPLICATIONS

It is again requested that the Group number be typed on amendments and other communications relating to pending applications in order to expedite the handling of mail and to conserve manpower. The number of the Group should be placed on the right-hand side, opposite the Serial Number or name of applicant. In view of the vast amount of mail, continued careful attention to these details will do much toward avoiding delay in handling of mail.

C. A. KALK,
Nov. 6, 1969. *Director of Administration.*

[869 O.G. 345]

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(15) TRANSMITTAL FORMS

As a convenience to attorneys and to standardize processing, forms have been developed for use in transmitting (1) new applications (PO–1082) and (2) amendments adding claims (PO–1083). These forms were approved by a Notice appearing in the Federal Register, November 26, 1969, and are designated 37 CFR 3.51 and 3.52 (869 OG 1033). Attorneys who desire to use these forms may obtain them without charge from the Correspondence and Mail Branch or the Receptionist in Building 3 in Crystal Plaza.

RICHARD A. WAHL,
Jan. 2, 1970. *Assistant Commissioner.*

[870 O.G. 1040]

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(16) MICROFILM: PATENT NUMBER SEQUENCE CLASSIFICATION RECORD

The Patent Office announces a new microfilm publication entitled Patent Number Sequence Classification Record. This official record lists the original and cross-reference classifications together for each patent number, in patent number order. This sequence contrasts with that of the previously

announced Cumulative Index to the Classification of Patents which lists patent numbers by classification, in separate files for original and cross-reference classifications.

The Patent Number Sequence Classification Record comprises all patents issued through April 29, 1969. The classification includes all reclassifications made effective through January 1, 1969. This publication, which is available only in microfilm form, includes patents, design patents, reissue design patents, reissue patents, plant patents, defensive publications, and patents issued from 1790 to 1836. Updates to this record will be announced periodically, as circumstances warrant.

The Patent Number Sequence Classification Record comprises 16 reels of 16 mm. roll microfilm which are offered for sale in three different ways. The complete record is catalogued as PB–188600 and sells for $70.00. The 7 reels comprising patents issued from numbers 2,225,518 (issued in 1940) to the end of the file are offered together for those who desire only more recent patents. This set is catalogued as PB–188617 and sells for $35.00. Reels ordered individually or in sets other than the two mentioned above, sell for $6.00 apiece and should be ordered using the catalogue number for each reel desired, as shown below:

Cat. No.	Patent Nos. Included
PB–188601	1– 276,927
PB–188602	276,928– 539,569
PB–188603	539,570– 797,464
PB–188604	797,465–1,054,425
PB–188605	1,054,426–1,311,703
PB–188606	1,311,704–1,568,108
PB–188607	1,568,109–1,811,776
PB–188608	1,811,777–2,015,447
PB–188609	2,015,448–2,225,517
PB–188610	2,225,518–2,431,496
PB–188611	2,431,497–2,628,945
PB–188612	2,628,946–2,819,182
PB–188613	2,819,183–3,011,059
PB–188614	3,011,060–3,196,127
PB–188615	3,196,128–3,377,086
PB–188616	3,377,087–3,441,959

and Reissue Patents 1–26,557, Design Patents 1–214,007, Plant Patents 1–2,881 and all other categories mentioned in text above.

Orders may be addressed to:

CFSTI
5285 Port Royal Road
Springfield, Virginia 22151

Payment should be made in the form of a check or money order payable to the National Bureau of Standards—CFSTI.

Inquiries, comments or suggestions concerning this record may be directed to the U.S. Patent Office, Office of Organization and Systems Analysis, Washington, D.C. 20231.

E. A. HURD,
Director, Office of Organization and Systems Analysis.

Jan. 15, 1970.

[871 O.G. 2]

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(17) OFFICE ACTIONS

Effective December 1, 1970, applicants or their attorney or agent will be provided with one carbon copy of all Office actions, and the provision of additional or other reproductions of the ribbon copy will be discontinued.

Heretofore, the Office has provided one or two copies of the examiner's action, depending upon the nature of the action. The practice of furnishing more than one copy will be discontinued and, effective with the above change, the applicant will be furnished one copy of all examiner actions.

RICHARD A. WAHL,
Oct. 21, 1970. *Assistant Commissioner.*

[880 O.G. 740]

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(18) IDENTIFICATION FOR APPLICATION CORRESPONDENCE

The Office is continuing to experience difficulty in matching incoming papers with the corresponding application files. This applies especially to responses to Office Actions, powers of attorney, changes of address, status letters, requests for extensions of time, and petitions.

A very necessary part of a complete identification of a pending application is the three-digit Group or Art Unit number, e.g., 110 or 111. Frequently, the Group Art Unit number is entirely omitted, or there are errors in this number. In the latter situation the error often occurs as a result of the case having been reassigned within the Office, and the communication is directed to an Examining Group other than that indicated in the most recent Office Action.

Where the Group Art Unit number is entirely omitted, the routine operations of the Application Branch must be interrupted solely for the purpose of determining the location of the application so that the communication can be properly routed. Under these circumstances the efficiency of the Application Branch is impaired and the incoming paper is delayed in reaching its proper destination. Where such papers are not essential to compliance with a statutory period or time limit for response, they may be returned for completion to identify the location of the files.

To assist the Office in expediting its business, it is requested that ALL papers relating to a pending application include the following information:

1. Serial number (checked for accuracy),
2. Group Art Unit number (copied from filing receipt or most recent Office Action),
3. Filing date,
4. Name of the Examiner who prepared the most recent Office Action.
5. Title of the invention.

To further reduce the burden on the Application Branch and the Examining Groups, it is also requested that the submission of additional or supplemental papers on a newly filed application be deferred until a filing receipt has been received. In the same vein, it would be appreciated if the filing of additional papers relating to an allowed application were referred until a notice of allowance (POL–85) was received.

If the above suggestions are adopted the processing of both new and allowed applications could proceed more efficiently and promptly through the Patent Office.

RICHARD A. WAHL,
Mar. 5, 1971. *Assistant Commissioner.*

[885 O.G. 2]

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(19) IDENTIFICATION FOR APPLICATION CORRESPONDENCE

The Patent Office has been receiving an excessively large amount of application correspondence having incorrect identifying data, such as incorrect application serial numbers and incorrect Group Art Unit numbers. Attention is invited to the Notice of March 5, 1971 (885 O.G. 2), which sets forth the identifying data which should be included on all papers relating to a pending application. The failure to correctly identify the application to which a paper pertains delays or precludes the matching of the paper with the application, and may result in an inappropriate action being taken in the application, e.g., application being considered abandoned for failure to respond. Particular attention should be paid to the use of the correct application serial number and the correct Group Art Unit number (copied from the most recent Office action).

WILLIAM FELDMAN,
Oct. 2, 1973. *Deputy Assistant Commissioner for Patents.*

[915 O.G. 1164]

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(20) NEW DECLARATION FORM

To facilitate electronic data input and to expedite processing of new patent applications, a new declaration form has been devised.

Single copies of the new form are available without charge for direct use or for reproduction purposes and may be picked up from the receptionist in Building No. 3 of the Patent Office at Crystal Plaza. Written requests for the form will be filled only if directed to the Commissioner of Patents, Office of Information Services, Washington, D.C., 20231. A stamped, self-addressed envelope must be enclosed.

RICHARD A. WAHL,
May 28, 1971. *Assistant Commissioner.*

[887 O.G. 1840]

(21) DISTRIBUTION OF NEW DECLARATION FORM PO–1147 (REVISED)

In a recent issue of the OFFICIAL GAZETTE (898 O.G. 738) we announced the availability of a new Sole-Joint Declaration Form, PO–1147. The distribution was limited to single copies of the form. We are pleased to report that use of the form has resulted in increased efficiency in processing newly filed applications.

In order to encourage greater use of the form, we now can furnish larger quantities without charge. Accordingly, distribution will be made in single copies or in multiples of 10 forms. Since our supply is limited, only orders for reasonable quantities can be filled.

The forms may be obtained from the receptionist in the lobby of Building 3 at our Arlington, Va. location or by mail request. The latter should be addressed to:

Commissioner of Patents
Washington, D.C. 20231,
Attn: Form Distribution

ROBERT GOTTSCHALK,
Sept. 11, 1972. *Commissioner of Patents.*

[903 O.G. 368]

(22) PATENT APPLICATION BRANCH SERVICE

In order to expedite the processing of newly filed applications, improve the efficiency of the Office, and assist in the effort to normally dispose of patent applications within 18 months of their filing date, cooperation from the patent community is solicited with respect to recent procedural modifications.

Prior to examination concerning patentability, patent applications are now examined for compliance with formal requirements, and actions are mailed requiring correction of stated informalities. Many inquiries have arisen concerning the effect of such actions. Since the actions concerning correction of informalities include the setting of a period for response, failure to respond within the period set results in abandonment of the application.

Inquiries directed to the Application Branch, either in person or by telephone, concerning patent applications should not be made during the morning hours between 8:30 and 10:30.

The letter of transmittal accompanying the filing of continuing applications, particularly streamlined continuations and Rule 147 divisionals, should include such additional information as the identification by serial number of the parent application, its status, and location in the Patent Office. The supplying of this information will permit the processing of these new applications more rapidly than at present.

When a new application is filed with a request to transfer drawings under Rule 88, the application papers should include drawing prints to enable the Application Branch to process the case before transfer of the formal drawings is effected.

RICHARD A. WAHL,
June 1, 1971. *Assistant Commissioner.*

[887 O.G. 1841]

(23) NEW PROCEDURES FOR PROCESSING ORDERS FOR CERTIFIED COPIES WHEN MATERIAL IS NOT AVAILABLE FOR PHOTOCOPYING

The previous practice of the Document Services Division in handling customer's requests for certified copies of material not yet processed in the Application Division has been to return the order to the customer requesting him to reorder 30 days after receipt of his Official Filing Receipt.

In order to improve this procedure, as of August 2, 1971, all requests for certified copies of material that has not been processed in the Application Division and has not been placed on microfiche are processed in the following manner.

1. Each order is given a control number.
2. The customer is notified as follows:
   a. He will receive an acknowledgment of the receipt of his order.
   b. He will be given the assigned control number for ease of reference in case an inquiry is necessary.
   c. He will be informed that his order will be held in the Document Services Division until the copy can be reproduced from microfiche. No definite time can be given.
3. An Advance Order File has been set up in the Service Unit of the Document Services Division and the microfiche is checked daily.

For further service to its customers, the Document Services Division will furnish the Serial Number and Filing Date of the latest application available on microfiche for publication in the OFFICIAL GAZETTE.

ROBERT J. RISH,
Aug. 2, 1971. *Acting Assistant Commissioner for Administration.*

[890 O.G.301]

(24) STATUS INQUIRIES

In an effort to sharply reduce the volume and need for status inquiries, the past policy that diligence must be established by making timely status requests in connection with petitions to revive is hereby discontinued.

When an application has been abandoned for an excessive period before the filing of a petition to revive, an appropriate terminal disclaimer may be required. It should also be recognized that a petition to revive must be accompanied by the proposed response unless it has been previously filed (Rule 137). Also, under Rule 113, "Response to a final rejection or action must include cancellation of, or appeal from the rejection of, each claim so rejected and, if any claim stands allowed, compliance with any requirement or objection as to form."

New Applications

Current examining procedures now provide for the routine mailing from the Examining Groups of Form POL–327 in *every* case of allowance of an application except where an Examiner's Amendment is promptly mailed. Thus, the separate mailing of a Form POL–327 or an Examiner's Amendment in addition to a formal Notice of Allowance (POL–85) in all allowed cases would seem to obviate the need for status inquiries even as a precautionary measure where the applicant may believe his new application may have been passed to issue on the first examination. However, as an exception, a status inquiry would be appropriate where a Notice of Allowance is not received within three months from receipt of either a Form POL–327 or an Examiner's Amendment.

Current examining procedures also aim to minimize the spread in dates among the various examiner dockets of each Art Unit and Group with respect to actions on new applications. Accordingly, the dates of the "oldest new applications" appearing in the OFFICIAL GAZETTE are fairly reliable guides as to the expected time frames of when the Examiners reach the cases for action.

Therefore, it should be rarely necessary to query the status of a new application.

Amended Applications

Amended cases are expected to be taken up by the examiner and an action completed within two months of the amendment date. Accordingly, a status inquiry is not in order after response by the attorney until five or six months have elapsed with no response from the Patent Office. A post card receipt for responses to Office actions, adequately and specifically identifying the papers filed, will be considered *prima facie* proof of receipt of such papers. Where such proof indicates the timely filing of a response, the submission of a copy of the post card with a copy of the response will ordinarily obviate the need for a petition to revive. Proof of receipt of a timely response to a final action will obviate the need for a petition to revive only if the response was in compliance with Rule 113.

In General

It is expected that this new policy will result in sharply reducing the number of status inquiries and permit the time now spent on them to be used in increasing Patent Office efficiency in other more essential areas.

Such status inquiries as may be still necessary may be more expeditiously processed by the Patent Office if each

inquiry includes the application Serial Number, filing date, name of the applicant, name of the Examiner who prepared the most recent Office action, and Group Art Unit (taken from the most recent Office communication) in addition to the last known status of the application, and is accompanied by a stamped return-addressed envelope. Telephone inquiries regarding the status of applications should be directed to the group clerical personnel and not to the examiners. Inasmuch as the official records and applications are located in the clerical section of the Examining Groups, the clerical personnel can readily provide status information without consulting the examiners.

Status replies will be made by the Patent Office clerical support force and will only indicate whether the application is awaiting action by the Examiner or the applicant's response to an Office action. In the latter instance the mailing date of the Office action will also be given.

The Notices of Dec. 5, 1969 (869 O.G. 1031) and Sept. 22, 1965 (819 O.G. 444) are hereby superseded.

RICHARD A. WAHL,
Nov. 24, 1971. *Assistant Commissioner of Patents.*

[893 O.G. 810]

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(25) PATENTED FILES SERVICE

Delays have frequently been experienced in receiving files and other papers ordered from the Federal Records Center at Suitland, Md. To provide better service in this respect, the Patent Office has initiated its own pick up and delivery service to and from the storage facility. Customer orders are now normally filled within two days.

Orders for files may be placed at the Attorneys and Record Room Desk, Building 4, Room 1D01. There is no charge for this service.

ROBERT GOTTSCHALK,
Nov. 26, 1971. *Acting Commissioner of Patents.*

[893 O.G. 807]

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(26) PUBLIC RECORDS CERTIFICATION DESK

The certification desk, located in Crystal Plaza in the Attorneys and Record Room, Building 4, Room 1D01, provides "on-the-spot" certifying service. This desk handles walk-in requests for certified copies of file wrappers, patented applications, patents, and selected papers from patented application files. The usual fee for this service ($1.00 per certification) may be applied at this location in the form of a paid cash order form, obtainable at the Cashier's Office adjacent the lobby of Building #2.

ROBERT GOTTSCHALK,
Nov. 26, 1971. *Acting Commissioner of Patents.*

[893 O.G. 810]

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(27) CUSTOMER RELATIONS CENTER

A Customer Relations Center, located in Crystal Plaza adjacent to the Public Search Room, Building 4, Rooms A102 and A103, has been established to provide a central customer complaint and inquiry service. The Center is staffed with six highly experienced employees who process inquiries concerning copies of U.S. patent documents previously ordered but not received. This Center handles not only walk-in but telephonic, and written requests for assistance as well. In addition to improving customer relations, this service is intended to relieve the primary customer service areas (Patent Copy Sales, Document Services, and Reference Order Branch), and Patent Office officials, or interruptions and irregular demands on their time.

The telephone number for this service is (703) 557-2003.

ROBERT GOTTSCHALK,
Nov. 26, 1971. *Acting Commissioner of Patents.*

[893 O.G. 807]

(28) ACCESS TO PATENT APPLICATION AND INTERFERENCE FILES

In order to insure that access to patent application and interference files is given only to persons who are entitled thereto or who are specially authorized to have access under Rule 14 of the Rules of Practice in Patent Cases, and to insure also that the file record identifies any such specially authorized person who has been given access to a file, the following practice will be observed by all personnel of the Patent Office:

1. Access, as provided for in the Rules of Practice, will be given on *oral request* to any applicant, patentee, assignee, or attorney or agent of record in an application or patent only upon *proof of identity* or upon *recognition* based on personal acquaintance.
2. Where a power of attorney or authorization of agent was given to a registered firm prior to July 2, 1971, access will be given upon oral request as in paragraph 1 above to any registered member or employee of the firm who has signatory power for the firm.
3. Unregistered employees of attorneys or agents, public stenographers, and all other persons not within the provisions of paragraphs 1 and 2 above will be given access only upon presentation of a *written authorization for access* signed by a person specified in paragraph 1 above, which authorization will be entered as a part of the official file.

ROBERT GOTTSCHALK,
Nov. 24, 1971. *Acting Commissioner of Patents.*

[893 O.G. 810]

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(29) PATENT OFFICE SERVICES

During recent months we have achieved significant progress in improving various aspects of the operations of the Patent Office, and we are hopeful that this progress will continue. At the same time, it is essential that we consolidate and maintain gains which we have achieved. Unfortunately, it appears that we have not done this in two areas of particular concern to attorneys and others dealing with the Patent Office—(i) filling mail orders for patent copies and (ii) supplying certified copies of patent applications.

Within the past few weeks, criticism by examiners and the public—which I very much appreciate—brought to light these operating deficiencies and also the inadequacy of internal operating information concerning them.

Analysis of these situations in depth was immediately begun, and an all-out remedial program was initiated to eliminate the causes of these difficulties and to improve our services in both of these areas. The purpose of this notice is to confirm to you our awareness of these problems and their importance, to inform you of our efforts to overcome them, and to provide a current report of their status.

Patent Copies

I am pleased to be able to inform you that, as of July 24, 1972, we were back on schedule with respect to the filling of orders for patent copies. These are now being filled within 10 days following receipt of the order in the Patent Office.

Problems of accuracy and quality in the filling of such orders remain, however, and our efforts in this connection have been somewhat handicapped by the pressure to achieve promptness. We fully appreciate the importance of these matters, and have adopted quality control techniques which we will increasingly emphasize to provide necessary improvements.

Certified Copies

Those experiencing difficulty in promptly obtaining certified copies should be aware of the availability in the Patent Office of "on-the-spot" service in this connection, so that this may be utilized in appropriate circumstances.

A notice concerning this service appeared in the OFFICIAL GAZETTE of December 21, 1971 (893 O.G. 810) as follows:

> "The certification desk, located in Crystal Plaza in the Attorneys and Record Room, Building 4, Room 1D01, provides 'on-the-spot' certifying service. This desk handles walk-in requests for certified copies of file wrappers, patented applications, patents, and selected papers

from patented application files. The usual fee for this service ($1.00 per certification) may be applied at this location in the form of a paid cash order form, obtainable at the Cashier's Office adjacent the lobby of Building #2."

This service continues to be available to provide immediate service on orders for certified copies of patented files.

However, as concerns orders for certified copies of pending applications, delays are still being experienced with respect to both mail orders and walk-in requests, notwithstanding improvements resulting from our continuing efforts. We anticipate that such delays may continue to be experienced with respect to orders received during the next 30 days.

We are mindful of the importance of your being able to obtain certified copies promptly, especially where these are essential to obtaining the benefit of original filing dates with respect to patent applications filed abroad. We are determined to make every effort to meet your needs in this respect and, accordingly, are initiating for the duration of the present emergency period a special program as follows:

(1) Effective immediately, and continuing until further notice, a special "Expedited Service" for certified copies will be available through the Customer Relations Branch located adjacent the Public Search Room in the Patent Office. On request for such service, the Customer Relations Branch will locate and withdraw critically needed orders from the normal flow and fill them on a custom basis. This program will include special courier service between the production operations in the main building of the Department of Commerce in Washington and the Patent Office facilities at Crystal Plaza. This special "Expedited Service" may be requested in person, by mail, or by telephone (703–557–2003). No additional charge will be made for such service.

(2) Attorneys and others requesting certified copies are requested

(i) to file their orders, whenever possible, at least two (2) weeks in advance of the date when such copies are required, and

(ii) to specify, when filing such orders, the exact date by which such copies are required.

Compliance will provide us with necessary lead time and also enable us to establish necessary priorities among the orders to be expedited.

(3) Requests for "Expedited Service" should be requested *only* in cases of critical need. Special handling necessarily detracts from our capability to service other orders within a reasonable time, and indiscriminate use of "Expedited Service" would impair our ability to meet the needs of those having critically urgent problems.

It is our hope and expectation that regular service will soon be restored to an acceptable level. A notice terminating this special program will be published when that has been achieved. In the meantime, your cooperation and understanding will be appreciated.

ROBERT GOTTSCHALK,
July 25, 1972. *Commissioner of Patents.*

[901 O.G. 412]

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(30) PATENT OFFICE SERVICES

ADDENDUM TO OFFICIAL GAZETTE NOTICE OF AUG. 8, 1972 (901 O.G. 412)

We wish to call attention to a situation discovered during our study and analysis of the patent copy service. We found that there has been a lack of effective controls affecting orders for printed copies of patents placed by letter, including cash order, and deposit account order forms.

Effective controls for Patent Office coupon orders have been established.

We are now implementing a similar procedure for orders placed by letter, including cash order, and deposit account order forms. It is possible, however, that a few orders submitted in this way in the last few months have gone astray. Accordingly, if you placed such requests for patent copies prior to July 15, 1972, and have not yet received those copies, we suggest that you submit, to the address given below, a follow-up communication which should identify the original request by date and include the Patent Numbers originally ordered.

Address inquiries to:

Director
Office of Public Services
U.S. Patent Office
Washington, D.C. 20231

ROBERT GOTTSCHALK,
Sept. 7, 1972. *Commissioner of Patents.*

[903 O.G. 368]

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(31) EARLIER NOTIFICATION OF SERIAL NUMBERS

Various procedures are being revised in an effort to reduce pre-examination processing time for newly filed patent applications and to implement the new Patent Application Locator and Monitoring System. The first change which has been effected results in the assignment of serial numbers in the Correspondence and Mail Division immediately after mail has been opened.

With the implementation of this new procedure, it is no longer necessary to submit two self-addressed post cards when early notification of the serial number is desired. If a self-addressed post card is submitted with a patent application, that post card will be stamped with both the receipt date and serial number prior to returning it to the addressee.

The identifying data on the post card should include: (1) applicant's name(s); (2) title of invention; (3) number of pages of specification, claims, and sheets of drawing; (4) whether oath or declaration used; and (5) amount and manner of paying the fee.

A return post card should be attached to *each* patent application for which a receipt is desired.

This notice supersedes the notice of March 10, 1971 (884 O.G. 970).

WILLIAM I. MERKIN,
Assistant Commissioner for Administration.
August 9, 1972.

[902 O.G. 2]

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(32) NOTICE TO APPLICANTS, ATTORNEYS AND AGENTS RE PRELIMINARY CLASSIFICATION OF PATENT APPLICATIONS

The Patent Office is initiating a program for expediting newly filed applications through pre-examination steps. This program requires your cooperation to attain the desired result—a reduction in processing time.

We are, therefore, asking you to include a preliminary classification on newly filed applications. The preliminary classification, preferably class and subclass designations, should be identified in the upper right-hand corner of the letter of transmittal accompanying the application papers, for example, "Proposed class 2, subclass 129."

This program is voluntary and the classification submitted will be accepted as advisory in nature. The final class and subclass assignment remains the responsibility of the Patent Office.

RICHARD A. WAHL,
Aug. 11, 1972. *Acting Commissioner of Patents.*

[902 O.G. 376]

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(33) CHANGE IN COPY CERTIFICATION PROCEDURES

Pursuant to 28 USC 1744 the Patent Office provides "copies of letters patent or of any records, books, papers or drawings belonging to the Patent Office and relating to patents, authenticated under the seal of the Patent Office and certified by the Commissioner of Patents, or by another officer of the Patent Office authorized to do so by the Commissioner. . . ." In the interest of improved efficiency the Patent Office will, effective immediately, change its method of certifying copies of the recited materials. Thereafter, the certificate and the copy will be secured together by a staple in lieu of the ribbon currently employed. The new procedures will retain the use of the Patent Office seal and the certification by the Com-

missioner of Patents or other authorized officer in keeping with the requirements of the above statute.

RICHARD A. WAHL,
Sept. 20, 1972. *Acting Commissioner.*

[903 O.G. 368]

(34) PATENT OFFICE BUSINESS HOURS

This procedure is being published to bring to the attention of the public security provisions concerning the Patent Office premises and Patent Office files.

The public is reminded that the Patent Office working hours are 8:30 a.m. to 5:00 p.m. Monday through Friday, excluding legal holidays in the District of Columbia. Outside these hours, only Patent Office employees are authorized to be in areas of the Patent Office other than the Public Search Rooms. Of course, a member of the public engaged in a discussion of business with an Office employee may be invited by the employee to stay beyond Office hours to conclude the discussion.

The hours for the Public Search Room are 8:00 a.m. to 8:00 p.m., and the hours for the Trademark Search Room are 8:00 a.m. to 6:00 p.m. Monday through Friday, excluding legal holidays in the District of Columbia.

During working hours, all applicants, attorneys, and other members of the public should announce their presence to the Office personnel in the area of their visit. In the Examining Groups, visitors should inform the group receptionist of their presence before visiting other areas of the Group.

RENE D. TEGTMEYER,
Sept. 27, 1973. *Acting Commissioner of Patents.*

[915 O.G. 1164]

RECORDS AND FILES

(35) ACCESSIBILITY OF ASSIGNMENT RECORDS

In view of a number of inquires as to the manner in which Rule 1.12 of the Patent Office Rules of Practice, as amended August 23, 1965 (819 O.G. 443) is to be applied, the procedure which it is planned to follow in certain types of cases is set forth below.

1. Assignments relating to applications for registration of trademarks will be open to public inspection as heretofore.

2. The Office will not open certain parts only of an assignment document to public inspection. If such a document contains two or more items, any one of which, if alone, would be open to such inspection, then the entire document will be open. Thus, if an assignment covers either a trademark or a patent in addition to one or more patent applications, it will be available to the public ab initio; and if it covers a number of patent applications, it will be so available as soon as any one of them is patented. Assignments relating only to one or more pending applications for patent will not be open to public inspection.

3. If the application on which a patent was granted is a division or continuation of an earlier case, the assignment records of that case will be open to public inspection; similar situations involving continuation in part applications will be considered on their individual merits.

4. Assignment records relating to reissue applications will be open to public inspection.

EDWARD J. BRENNER,
Dec. 15, 1965. *Commissioner.*

[822 O.G. 769]

(36) NOTIFICATION RE: CONFLICT IN ASSIGNMENT IN CERTAIN APPLICATIONS

Effective September 12, 1966, Assignment Branch will discontinue mailing notification in cases where there is a conflict in assignment between an original application and its divisional, continuation, substitute, or continuation-in-part application.

Assignments from original applications are applied without charge ONLY to divisional, continuation, or substitute applications where the date of the assignment is prior to the filing date of the later-filed application. (Continuation-in-part applications require separate assignments if they are to be issued to the assignee.)

Practitioners are reminded of the provisions of Rule 334. Unless an assignment is filed at or prior to the date of payment of the issue fee, the patent will normally be issued in the name of the inventor.

Section 306 of the Manual of Patent Examining Procedures will be amended appropriately.

W. R. ARMSTRONG,
Director, Office of Patent Services.

Concurred:
(signed) R. A. WAHL,
Assistant Commissioner.

[830 O.G. 442 (Sept. 12, 1966)]

(37) RECORDING OF INSTRUMENTS

Effective April 1, 1967, the Patent Office will accept and record legible certified copies of original assignments or other instruments.

The certified copy, if not in the English language, will not be recorded unless accompanied by a translation signed by the translator.

Certification shall be to the fact that the instrument submitted is a true copy of the original and shall be made by a notary public or, if in a foreign country, by a consular officer of the United States or an officer authorized to administer oaths and authenticated by a consular officer of the United States.

RICHARD A. WAHL,
Mar. 3, 1967. *Assistant Commissioner.*

[836 O.G. 1111]

(38) PUBLIC SEARCH ROOM

Due to budget and personnel limitations which took effect on July 1, 1968, it has become necessary to adopt measures that are consistent with these limitations and that will permit continuance of Patent Office activities and facilities without curtailing their use to the public. Among these measures is the service of returning to the files those patent bundles used by the attorneys and the general public in the Public Search Room.

Beginning August 19, 1968, in order that free access to the stacks may be maintained, persons drawing patent bundles from the search files will be expected to return them to the file slots from which they were withdrawn.

This will enable the personnel in the Public Search Room to concentrate their time and efforts on the necessary updating and storage maintenance for improvement of the integrity of the search files.

RICHARD A. WAHL,
Aug. 12, 1968. *Assistant Commissioner.*

[854 O.G. 287]

(39) ASSIGNMENT INFORMATION FOR ISSUE FEE TRANSMITTAL FORM

Rule 334, revised November 4, 1969, requires . . . "At the time of payment of the issue fee, a statement must be furnished indicating whether or not an assignment has been filed with the Patent Office. In the event an assignment has been filed, such statement must include the name of the assignee and indicate whether or not an acknowledgment of a recorded assignment has been received from the Patent Office."

The Issue Fee Transmittal Form POL-85b revised December 1969, provides space (Item 2) for Assignment Data which should be completed to comply with the Rule. Unless an assignee's name and address are identified in Item 2 of the Issue Fee Transmittal Form POL–85b, the patent will issue to the applicant. Assignment data printed on the patent will be based on information so supplied.

A request for correction of error arising from failure to correctly provide this Assignment Data in Item 2 will be considered only under the provisions of Rule 323 for a certificate of correction of applicant's mistake.

The recording of instruments in the Assignment Branch is not affected by this notice.

WILLIAM E. SCHUYLER, JR.,
Sept. 28, 1970. *Commissioner of Patents.*

[879 O.G. 988]

(40) CERTIFIED COPIES OF APPLICATIONS AS ORIGINALLY FILED

The Patent Office has discontinued placing the assignments of record on the file wrapper of patent applications, except when a title report is requested or upon allowance of the case. Accordingly, the copies of applications prepared in response to requests for a certified copy of a patent application as filed, will no longer include an indication of assignments. Applicants desiring an indication of assignments of record should request separately certified copies of assignment documents.

ROBERT J. RISH,
Acting Assistant Commissioner for Administration.

[887 O.G. 1042 (6-22-71)]

(41) PATENTED FILES SERVICE

Delays have frequently been experienced in receiving files and other papers ordered from the Federal Records Center at Suitland, Md. To provide better service in this respect, the Patent Office has initiated its own pick up and delivery service to and from the storage facility. Customer orders are now normally filled within two days.

Orders for files may be placed at the Attorneys and Record Room Desk, Building 4, Room 1D01. There is no charge for this service.

ROBERT GOTTSCHALK,
Nov. 26, 1971. *Acting Commissioner of Patents.*

[893 O.G. 807]

(42) PUBLIC RECORDS CERTIFICATION DESK

The certification desk, located in Crystal Plaza in the Attorneys and Record Room, Building 4, Room 1D01, provides "on-the-spot" certifying service. This desk handles walk-in requests for certified copies of file wrappers, patented applications, patents, and selected papers from patented application files. The usual fee for this service ($1.00 per certification) may be applied at this location in the form of a paid cash order form, obtainable at the Cashier's Office adjacent the lobby of Building #2.

ROBERT GOTTSCHALK,
Nov. 26, 1971. *Acting Commissioner of Patents.*

[893 O.G. 810]

(43) PATENT OFFICE SERVICES

A notice concerning delays in furnishing Certified Copies was published Aug. 8, 1972 (901 O.G. 412). This notice announced the initiation of a special "Expedited Service" for obtaining copies of pending applications promptly. As indicated in the notice, this special service would be terminated upon restoration of our regular service to an acceptable level.

I am pleased to report that our regular service has been restored to an acceptable level and this special program is being terminated.

However, our efforts to improve our services in these areas will continue. We have made progress, but are not resting on that record. We recognize that there are still problems of accuracy and quality in the filling of orders. These are currently being examined in an effort to bring about necessary improvements.

Thank you for your cooperation and understanding during this difficult period.

ROBERT GOTTSCHALK,
May 30, 1973. *Commissioner of Patents.*

[911 O.G. 1130]

(44) NUMERICAL COLLECTION OF U.S. PATENTS IN MICROFORM FOR PUBLIC SEARCH ROOM

Effective immediately, the Patent Office will implement a program to make available for use, in the Public Search Room, a complete numerical collection of printed U.S. Patents on 16 mm negative microfilm.

The program will require approximately six months for completion. An adequate number of reader-printers will be installed. The present numerical paper collection (bound volumes) will be removed from the mezzanine area when microfilm for the same patent numbers is available.

RENE D. TEGTMEYER,
Acting Commissioner of Patents.

[915 O.G. 378]

FEES AND PAYMENT OF MONEY

(45) REVISION OF "DISCONTINUANCE OF DEPOSIT ACCOUNT SERVICE FOR SALE OF PATENT COPIES"

In view of the difficulties experienced by many of its customers, the Patent Office is revising the Notice appearing in the December 1, 1964, issue of the *Official Gazette of the U.S. Patent Office*. This Notice—Discontinuance of Deposit Account Service for Sale of Patent Copies—is revised to except certain types of patent copy orders.

The Patent Office will now accept lists of fifty (50) or more numbers arranged in numerical sequence to be charged to Deposit Accounts. Service charges, such as Special Handling and Air Mail postage for these orders, may also be charged to Deposit Accounts.

C. A. KALK,
July 15, 1965. *Director of Administration.*

[818 O.G. 1207]

(46) FEES IN CONNECTION WITH AMENDMENTS TO PATENT APPLICATIONS

This notice supplements the Notice of September 10, 1965, 818 O.G. 1207, September 28, 1965, relating to the administration of the act of July 24, 1965, Public Law 89-83, increasing certain fees payable to the United States Patent Office.

That act provides for the payment of additional fees on presentation of certain claims during the prosecution of applications. This provision applies in the case of applications filed on or after October 25, 1965, the effective date of the act. In such cases, when any amendment is filed which presents additional claims over the total number covered by fees previously paid, it should be accompanied by any additional fees due.

As in the case of claims presented after an application is filed and before first action, described in the Notice of September 10, 1965, when independent claims are subsequently presented so that the number of uncanceled independent claims in the application as amended exceeds the number of such claims paid for, an additional fee of $10 is due for each such additional claim. Similarly, an additional fee of $2 is due for each claim added in excess of the number of uncanceled claims, independent or dependent, already paid for.

Treatment of Amendments Unaccompanied by Fees Due

Amendments filed during and after the prosecution of an application and not accompanied by the entire fee due upon such filing will be treated as follows:

If such an amendment is filed in reply to an Office action it will be regarded as not being fully responsive thereto and the practice set forth in section 714.03 of the Manual of Patent Examining Procedure will be followed, care being taken to avoid any abuse of this practice by attorneys as, for example, by habitual submission of such amendments without fees or with insufficient fees.

If an amendment which is not filed in response to an Office action is of such a nature as to require a fee and is not accompanied by the full fee required, it will not be entered and the applicant will be so advised.

Amendment During Interference

An amendment filed in connection with a motion to add counts to an interference (Rule 233) must be accompanied by

the claim or claims to be added and with the appropriate fees, if any, which would be due if the amendments were to be entered. It may be that the amendments will never be entered. Only upon the granting of the motion is it necessary for the other party or parties to present the claims, but the fees must be paid whenever presented.

Claims which have been submitted in response to a suggestion by the Office for inclusion in an application must be accompanied by the fee due, if any.

Amendment After Requirement for Restriction

After a requirement for restriction or election of species, nonelected claims will be included in determining the fees due in connection with a subsequent amendment unless such claims are canceled.

Refunds

Money paid in excess or by mistake in connection with an amendment will be refunded in the usual manner.

Amendments affecting the claims cannot serve as the basis for granting any refund.

Money paid in connection with the filing of a proposed amendment will not be refunded by reason of the nonentry of the amendment.

EDWARD J. BRENNER,
Jan. 13, 1966. *Commissioner of Patents.*

[823 O.G. 814]

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(47) DEPOSIT ACCOUNTS—STATUTORY FEE CHARGES

Beginning on May 1, 1966, and until further notice, statutory fees, including filing fees for patent, design, and trademark applications, issue fees, appeal fees and opposition, cancellation and petition fees may be charged against the deposit accounts provided for by Rule 25(a) of the Rules of Practice in patent cases. During this period the prohibition of Rule 25(b) against such charges will be suspended.

In view of the facts that these fees are indispensable parts of the actions to which they relate and that the charging of a fee against an account which does not contain sufficient funds to cover it cannot be regarded as a payment of the fee, it is evident that the overdrawing of a deposit account may result in the loss of a vital date and may also impose a substantial burden on the Patent Office in making appropriate correction of its records. It is, therefore, necessary that effective steps be taken to avoid such overdrafts, as follows:

Checks of all accounts will be made periodically, and if any account is found to have been overdrawn, it will be immediately removed from the active accounts and no further drafts on it will be honored. Prompt payment of the outstanding balance will be required and the depositor or his attorney may be called on for an itemized statement identifying all statutory fees charged against the account during the period in question in order that it may be ascertained whether any previously granted date should be withdrawn.

It is emphasized that the success of the procedure outlined above depends upon the maintenance of a sufficient balance in deposit accounts at all times to meet any charges made against them. The Office must, therefore, strictly refuse to permit any depositor who has once overdrawn his account to maintain such an account in the future and in the event that any substantial number of overdrafts occurs it may be necessary to reestablish the prohibition of Rule 25(b) against charging statutory fees against deposit accounts.

Accordingly, effective May 1, 1966, the requirement of Rule 25(a) that an amount sufficient to cover all charges made against an account must always be on deposit will be strictly enforced, regardless of whether any fee is included in such charges and where this requirement is not complied with the account involved will be removed from the active accounts.

EDWARD J. BRENNER,
Feb. 23, 1966. *Commissioner.*

[824 O.G. 1200]

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(48) PRACTICE IN THE USE OF ACCOUNTS FOR PAYMENT OF STATUTORY FEES

In the OFFICIAL GAZETTES of March 15, 22, and 29, there appeared copies of an announcement by the Commissioner providing for a trial use of accounts established under Rule 25 for the payment of statutory fees. A number of questions have come up in connection with the use of accounts in the payment of these fees prescribed by Public Law 89–83 and, in the interest of uniform practice, publication of a statement is warranted.

A general direction by an applicant or attorney to charge to an account these fees as they arise in any application prosecuted by the applicant, the attorney, or the firm will not be effective for such a purpose. Authority to make charges will be limited to a particular application.

A separate direction to charge shall be filed for each fee. Each such direction to charge a fee shall be transmitted on a separate sheet of paper and, in the case of fees based on modification of claims shall include the best estimate of the fee due. Failure to include such an estimate provides the basis for a refusal to enter any amendment transmitted therewith, as an incomplete response. Where variable fees are involved inclusion of a direction to charge or credit a deficiency or overpayment would appear appropriate.

An issue fee will not be charged to an account until a notice of allowance has been forwarded and a reply to that notice received.

For the purposes of determining the fee due the Patent Office, a claim will be treated as dependent if it contains reference to one other claim in the application. A claim determined to be dependent by this test will be entered if the fee paid reflects this determination. This does not, however, prevent the rejection of such a claim as improper, if, in fact, it is not a dependent claim.

EDWARD J. BRENNER,
Apr. 12, 1966. *Commissioner of Patents.*

[825 O.G. 1183]

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(49) DEPENDENT CLAIMS

Although the notice published on October 5, 1965, in 819 O.G. 3, explained that for the purposes of the present fee bill, Public Law 89–83, approved July 24, 1965, the Patent Office will consider a proper dependent claim as being one which incorporates by reference a single preceding claim, whether independent or dependent, and includes all the limitations of the claim so incorporated, there appears to be still some uncertainty on this matter and it is therefore thought to be desirable to elaborate it.

Since the initial determination, for fee purposes, as to whether a claim is dependent must be made by persons other than examiners, it is necessary, at that time, to accept as dependent virtually every claim which refers to another claim, without determining whether there is actually a true dependent relationship. Such acceptance does not, however, preclude a subsequent holding by the examiner that a claim is not a proper dependent claim.

An essential characteristic of a proper dependent claim is that it shall include every limitation of the claim from which it depends (35 U.S.C. 112) or in other words that it shall not conceivably be infringed by anything which would not also infringe the basic claim. Thus, for example, if claim 1 recites the combination of elements *a*, *b*, *c* and *d*, a claim reciting the structure of claim 1 in which *d* was omitted or replaced by *e* would not be a proper dependent claim, even though it placed further limitations on the remaining elements or added still other elements.

The fact that a dependent claim which is otherwise proper might require a separate search or be separately classified from the claim on which it depends would not render it an improper dependent claim, although it might result in a requirement for restriction.

The fact that the independent and dependent claims are in different statutory classes does not, in itself, render the latter improper. Thus, if claim 1 recites a specific product a claim for the method of making the product of claim 1 in a particular manner would be a proper dependent claim since it could not be infringed without infringing claim 1. Similarly, if claim 1 recites a method of making a product, a claim for a product made by the method of claim 1 could be a proper dependent claim. On the other hand, if claim 1 recites a method of making a specified product, a claim to the product set forth in claim 1 would not be a proper dependent claim if the product might be made in other ways.

Any claim which is in dependent form but which is so worded that it does not, in fact, include every limitation of

the claim on which it depends, will be required to be cancelled as not being a proper dependent claim; and cancellation of any further claim depending on such a dependent claim will be similarly required. The applicant may thereupon amend the claims to place them in proper dependent form, or may redraft them as independent claims upon payment of any necessary additional fee.

The basis for the difference in fees between independent and dependent claims is the fact that the examination of a dependent claim is normally a comparatively simple matter after the claim on which it depends has been examined. This relationship, however, obtains only when the independent claim represents a bona fide attempt to define the invention and to distinguish it from the known prior art. Accordingly, the presentation of a claim which on its face is obviously unpatentable or indefinite, as basis on which other claims are dependent, is not considered to be proper practice. One example of such a practice involves the use of a claim drawn to "all the features of novelty herein disclosed," with other claims, which actually recite the features thought to be novel, being dependent on the first. A similarly objectionable arrangement would involve the use, as a basic independent claim, of a claim merely reciting "a wheeled vehicle," "an amino acid" or "an internal combustion engine."

Such a practice as that just described involves not only an attempt to evade the free provisions of Public Law 89–83, but also the presentation of a claim known by the attorney or agent presenting it to be unpatentable. Any registered patent attorney or agent who makes a practice of presenting claims of this character may be called on to explain his actions.

(signed) EDWARD J. BRENNER,
June 8, 1966. *Commissioner.*

[828 O.G. 1]

(50) DEPOSIT ACCOUNTS

The practice instituted on May 1, 1966, pursuant to the notice of February 23, 1966 (824 O.G. 1200), whereby statutory fees may be charged against deposit accounts, and such accounts are closed if overdrawn, has resulted in certain difficulties for the Patent Office and deposit account holders. It has been decided therefore to modify that practice as indicated below.

As was pointed out in that notice, the charging of a fee against an overdrawn account cannot be considered as payment of the fee until a proper balance is restored or payment is made in some other way. Accordingly, deposit account holders who charge such fees must assume the risk of losing vital dates if they do not maintain a proper balance in their accounts at all times.

Apart from this, however, the overdrawing of an account places a burden on the Patent Office, particularly where a number of items are charged after the overdraft occurs, and it is appropriate that those who are responsible for causing such a condition should bear the cost of correcting it. In view of this fact, and of the hardship frequently caused if an account is permanently closed, the practice of closing deposit accounts merely because they are overdrawn will be discontinued, effective August 1, 1966. In lieu thereof an overdrawn account will be immediately suspended and no charges will be accepted against it until a proper balance is restored, together with a payment of ten dollars to cover the work done by the Patent Office incident to suspending and reinstating the account and dealing with charges which may have been made in the meantime. It is expected, however, that reasonable precautions will be taken in all cases to avoid overdrafts, and if an account is suspended repeatedly it will be necessary to close it.

Similarly, because of the burden placed on the Patent Office incident to the operation of deposit accounts, a charge of ten dollars will be made for opening each new account.

EDWARD J. BRENNER,
June 23, 1966. *Commissioner.*

[828 O.G. 377]

(51) PRACTICE RE: FILING FEES

It is suggested that attorneys review the notices pertaining to filing fees under the new Fee Act of 1965 appearing at 818 O.G. 1207, September 28, 1965, and 823 O.G. 814, February 15, 1966.

The filing fee includes the basic $65 fee plus an additional fee corresponding to the number and type of claims presented. For filing fee purposes the Patent Office considers any claim that specifically refers back to another claim to be a dependent claim, regardless of statutory class.

It appears that some attorneys are submitting filing fees in excess of their computations, apparently to insure against loss of a filing date should their computations be in error. This is neither necessary nor desirable. The Application Branch has been authorized to accept all applications, otherwise acceptable, if the basic fee of $65 is submitted, and if the deficiency is no more than $25 of the required filing fee, and to require payment of the deficiency within a stated period upon notification of the deficiency. Practitioners are urged to discontinue submitting excessive fees, since processing such fees has proved costly to the Office, and since applicants are believed to be adequately protected against loss of filing date by the practice outlined above.

There appears to be an erroneous impression that a Rule 147 divisional case requires a filing fee based on the claims in the parent case. The 818 O.G. 1207 notice specifically states that an amendment filed with a Rule 147 case will be effective to reduce the number of claims upon which the fee is based.

RICHARD A. WAHL,
June 30, 1966. *Assistant Commissioner.*

[828 O.G. 1085]

(52) ISSUE FEES

Effective March 31, 1969, the Patent Office will discontinue the practice of estimating the number of printed pages of specification in advance of printing.

Instead, a Minimum Issue Fee will be due three months from the date of the Notice of Allowance. This minimum fee, which consists of $100 plus $10 for the first page of printed specification plus $2 for each sheet of drawing, will be shown on the Notice of Allowance which has been revised to reflect the new practice.

After the patent is printed and the number of pages of specification is found to exceed the one already paid for, a Notice of Balance of Issue Fee Due will be attached to the Grant. Failure to pay this balance within THREE MONTHS FROM THE DATE OF THE PATENT will result in lapse of the patent.

Practitioners are urged to use the special fee transmittal forms provided with the Notice of Allowance and the Notice of Balance of Issue Fee Due.

The above fees will not be accepted from anyone other than the applicant, his assignee, attorney, or a party in interest as shown by the records of the Patent Office.

ATTENTION is also directed to the space designated on the Notice of Allowance Transmittal form PO–85*a* wherein the name of the assignee is required *if it is desired to have the patent issued to an assignee or assignees.*

RICHARD A. WAHL,
Jan. 31, 1969. *Assistant Commissioner.*

[860 O.G. 2]

(53) CALCULATION OF ISSUE FEES

This notice is to clairfy the manner in which the balance of issue fee due is calculated for the printed pages of specification (including claims) in excess of the one page already paid for by payment of the Minimum Issue Fee (see the notice of January 31, 1969, 860 O.G. 2).

Under the authority of 35 U.S.C. 151, the charge is disregarded WHERE ONLY ONE ADDITIONAL PAGE OR LESS is involved. Thus, if the patent consists of two pages or less, no balance fee is due. However, if the patent consists of three pages, a Notice of Balance of Issue Fee Due for $20 is mailed together with the original patent grant. (A page consists of one side of a printed sheet containing two columns or less.)

CLARENCE A. KALK,
Acting Assistant Commissioner for Administration.
Feb. 4, 1970.

[872 O.G. 1]

(54) FEES IN CONNECTION WITH AMENDMENTS TO PATENT APPLICATIONS

An increasing number of amendments are being received with improper fees. Because of the problems occasioned thereby, it is suggested that attorneys review the notices pertaining to fees and the Office practice related thereto (823 O.G. 814, Feb. 15, 1966; 828 O.G. 1, July 5, 1966; 828 O.G. 1085, July 26, 1966). Attention is invited to the new form 3.52, Amendment transmittal letter, for additional guidance in computing fees (869 O.G. 1036, Dec. 23, 1969). This form may be obtained from the Receptionist in Building 3 of Crystal Plaza. The new loose-leaf rule book, which will soon be available, includes a sample form (No. 52) also. When submitting the new amendment transmittal letter please include the Art Unit and Examiner's name.

The above notices and new form may also be found as items 24, 25, 29 and 147 in the consolidated listing of notices in the OFFICIAL GAZETTE of Jan. 13, 1970.

RICHARD A. WAHL,
Mar. 13, 1970. *Assistant Commissioner.*

[873 O.G. 1]

(55) EXAMINER AMENDMENTS—CHARGE AGAINST DEPOSIT ACCOUNTS

The Examiner's Amendment practice is hereby extended to include charges against deposit accounts under special conditions. Charges under this practice shall not exceed $50.00 for each patent application.

In order to expedite the issuance of a patent on an application otherwise ready for allowance, an Examiner's Amendment will be acceptable to make a charge against a deposit account provided prior approval is obtained from the attorney or agent. When such an Examiner's Amendment is prepared, the prior approval will be indicated by identification of the name of the authorizing party, the date and type (personal or telephone) of authorization, the purpose for which the charge is made (drawing correction, additional claims, etc.), and the deposit account number. Further identifying data, if deemed necessary and requested by the attorney, should also be included in the Examiner's Amendment.

RICHARD A. WAHL,
Mar. 17, 1970. *Acting Commissioner of Patents.*

[873 O.G. 667]

(56) CHANGES IN CHARGES FOR COPIES

The Patent Office is announcing a change in the charges for copies of materials produced on coin-operated copiers located at Crystal Plaza. The charge will be 15¢ per page.

This change will be effective within the next 30 to 45 days due to the engineering changes necessary to accommodate the difference in number and value of coins.

The Patent Office will monitor this change for a period of six months to: (1) Evaluate effects on other services, equipment utilization, materials, and facilities; and, (2) Ensure that the new charge of 15¢ per page will enable the Patent Office to fully recover the cost of operating the copiers.

At the end of the period, the data obtained will be evaluated with a view to continuance or discontinuance of the reduced rate.

ROBERT GOTTSCHALK,
June 6, 1972. *Commissioner of Patents.*

[899 O.G. 1230]

POWERS OF ATTORNEY

(57) WITHDRAWAL OF ATTORNEY

To expedite the handling of requests for permission to withdraw as attorney, under Rule 36, the request should be submitted in triplicate (original and two copies) and indicate thereon the present mailing address of the attorney who is withdrawing.

JOSEPH SCHIMMEL,
Apr. 18, 1967. *Solicitor.*

[837 O.G. 667]

(58) RULE 34—APPEARANCES BEFORE BOARD OF APPEALS

Applicants and their attorneys are reminded that Rule 34 provides that *before* any attorney or agent will be allowed to "take action of *any kind* in any application or proceeding, a written power of attorney or authorization . . . must be filed in the particular application or proceeding." [Italics added.]

Henceforth this rule will be strictly enforced. This applies to attorneys appearing at oral hearings before the Board of Appeals.

EDWIN L. REYNOLDS,
July 26, 1967. *First Assistant Commissioner.*

[841 O.G. 669]

(59) WITHDRAWAL OF ATTORNEY

Attorneys and agents are reminded that by notice published April 18, 1967, in 837 O.G. 667, requests for permission to withdraw as attorney or agent of record, pursuant to Rule 36, should be submitted in triplicate (original and two copies) and should indicate thereon the attorney or agent's present mailing address. The Group No. should also appear on all such requests.

JOSEPH F. NAKAMURA,
Sept. 27, 1973. *Acting Solicitor.*

[915 O.G. 1164]

(60) RECOGNITION OF ATTORNEYS AND AGENTS

In connection with the revised rules concerning recognition of attorneys and agents, published in the Federal Register July 2, 1971 (36 F.R. 12616), the Patent Office will operate under the following procedures.

The Patent Office will continue to give effect to powers of attorney and authorizations of agent naming firms filed, with respect to patent applications, before the effective date of the rules, July 2, 1971.

As stated in the revised rules, powers of attorney or authorizations of agent naming firms of attorneys or agents filed in patent applications after July 2, 1971 will not be recognized. However, the Patent Office will construe any such powers or authorizations filed prior to October 1, 1971, as a direction to consider the address of the firm as the correspondence address for the application.

The privilege afforded by revised Rule 34(a) of the Rules of Practice in Patent Cases as to recognition of registered attorneys and agents not of record will apply to all applications whether filed before or after the effective date. Attention is called to the requirement of Rule 34(a) that a paper filed by a registered patent attorney or agent in any application in which he is not of record should include both his signature and registration number.

Powers of attorney and authorizations of agent under Rule 34(b) naming one or more registered individuals may continue to be made.

As prior to the effective date of the revised rules, where a paper is hand delivered to the Office and that paper has been properly signed by a registered attorney or agent whether or not of record in the particular case involved, a duplicate copy may be appropriately marked by the Patent Office employee receiving the original and returned to the person delivering the paper. As an example, a duplicate copy of a request for an extension of time to make a response may be marked approved, initialed or signed, and returned to the delivering person.

WILLIAM E. SCHUYLER, JR.,
Aug. 5, 1971. *Commissioner of Patents.*

[890 O.G. 2]

(61) RECOGNITION OF FIRMS OF ATTORNEYS AND AGENTS

The notice of August 5, 1971, appearing in the OFFICIAL GAZETTE September 7, 1971 (890 O.G. 2) is revised as follows.

The originally announced period terminating October 1, 1971, relating to appointments of firms of attorneys or agents, filed in the Patent Office after July 2, 1971, is hereby extended. Accordingly, until further notice, any power of attorney or authorization of agent naming a firm, received in the Patent Office after July 2, 1971, will be construed as a direction to consider the firm name and address as the correspondence address of the application.

ROBERT GOTTSCHALK,
Sept. 27, 1971. *Acting Commissioner of Patents.*

[891 O.G. 886]

APPLICATION CONTENT

(62) DECLARATION IN LIEU OF OATH—RIBBONING OF PAPERS UNNECESSARY

Recent legislation, 35 U.S.C. 25, and Rule 68 based thereon permit applicants to make a written declaration in lieu of the customary oath or affirmation which accompanies a patent application.

Such a declaration, even if signed in a country foreign to the United States, need not be ribboned to the other papers.

The declaration, like the oath, is an integral part of the application and must be maintained together therewith. When a declaration is used, it is unnecessary to appear before any official in connection with the making of the declaration.

Further details are given in 29 F.R. 18502, Dec. 29, 1964, 811 O.G. 2.

RICHARD A. WAHL,
Mar. 2, 1965. *Superintendent, Patent Examining Corps.*

[813 O.G. 2]

(63) GUIDELINES FOR DRAFTING A MODEL PATENT APPLICATION UNDER THE REVISED RULES

The following guidelines illustrate the preferred layout and content for patent applications. They have been prepared to supplement the amendments to the rules which are effective January 1, 1967. These guidelines are suggested for the applicant's use.

Arrangement and Contents of the Specification

The following order of arrangement is preferable in framing the specification and, except for the title of the invention, each of the lettered items should be preceded by the headings indicated.

(a) Title of the Invention.
(b) Abstract of the Disclosure.
(c) Cross-References to Related Applications (if any).
(d) Background of the Invention.
1. Field of the Invention.
2. Description of the Prior Art.
(e) Summary of the Invention.
(f) Brief Description of the Drawing.
(g) Description of the Preferred Embodiment(s).
(h) Claim(s).

(a) *Title of the Invention:* (See Rule 72(a).) The title of the invention should be placed at the top of the first page of the specification. It should be brief but technically accurate and descriptive.

(b) *Abstract of the Disclosure:* (See Rule 72(b), MPEP 608.01(a), and 831 O.G. 1328, October 25, 1966.)

(c) *Cross-References to Related Applications:* (See Rule 78 and MPEP 201.11.)

(d) *Background of the Invention:* The specification should set forth the Background of the Invention in two parts:

(1) Field of the Invention: A statement of the field of art to which the invention pertains. This statement may include a paraphrasing of the applicable U.S. patent classification definities. The statement should be directed to the subject matter of the claimed invention.

(2) Description of the Prior Art: A paragraph(s) describing to the extent practical the state of the prior art known to the applicant, including references to specific prior art where appropriate. Where applicable, the problems involved in the prior art, which are solved by the applicant's invention, should be indicated.

(e) *Summary:* A brief summary or general statement of the invention as set forth in Rule 73. The summary is separate and distinct from the abstract and is directed toward the invention rather than the disclosure as a whole. The summary may point out the advantages of the invention or how it solves problems previously existent in the prior art (and preferably indicated in the Background of the Invention). In chemical cases it should point out in general terms the utility of the invention. If possible, the nature and gist of the invention or the inventive concept should be set forth. Objects of the invention should be treated briefly and only to the extent that they contribute to an understanding of the invention.

(f) *Brief Description of the Drawing:* A reference to and brief description of the drawing(s) as set forth in Rule 74.

(g) *Description of the Preferred Embodiment(s):* A description of the preferred embodiment(s) of the invention as required in Rule 71. The description should be as short and specific as is necessary to adequately and accurately describe the invention.

Where elements or groups of elements, compounds, and processes, which are conventional and generally widely known in the field to which the invention pertains, form a part of the invention described and their exact nature or type is not necessary for an understanding and use of the invention by a person skilled in the art, they should not be described in detail. However, where particularly complicated subject matter is involved or where the elements, compounds, or processes may not be commonly or widely known in the field, the specification should refer to another patent or readily available publication which adequately describes the subject matter.

(h) *Claim(s):* (See Rule 75.) A claim may be typed with the various elements subdivided in paragraph form. There may be plural indentations to further segregate subcombinations or related steps.

Reference characters corresponding to elements recited in the detailed description and the drawings may be used in conjunction with the recitation of the same element or group of elements in the claims. The reference characters, however, should be enclosed within parentheses so as to avoid confusion with other numbers or characters which may appear in the claims. The use of reference characters is to be considered as having no effect on the scope of the claims.

Claims should preferably be arranged in order of scope so that the first claim presented is the broadest. Where separate species are claimed, the claims of like species should be grouped together where possible and physically separated by drawing a line between claims or groups of claims. (Both of these provisions may not be practical or possible where several species claims depend from the same generic claim.) Similarly, product and process claims should be separately grouped. Such arrangements are for the purpose of facilitating classification and examination.

The form of claim required in Rule 75(e) is particularly adapted for the description of improvement type inventions. It is to be considered a combination claim and should be drafted with this thought in mind.

In drafting claims in accordance with Rule 75(e), the preamble is to be considered to positively and clearly include all the elements or steps recited therein as a part of the claimed combination.

Oath

(See Rule 65.) Where one or more previously filed foreign applications are cited or mentioned in the oath, complete identifying data, including the application or serial number as well as the country and date of filing, should be provided.

EDWARD J. BRENNER,
Date: Oct. 12, 1966. *Commissioner of Patents.*

[832 O.G. 5]

(64) PLANT PATENT APPLICATIONS—FILING DATE

Applicants and their attorneys are reminded that an application for a patent for a plant must include two copies of the specification, Rule 163(b), and two copies of the drawing when in color, Rule 165(b).

Effective immediately, applications for plant patents which fail to include two copies of the specification and two copies

of the drawing when in color will be accepted for filing only. The Application Branch will notify the applicant immediately of this deficiency and require the same to be rectified within one month. Failure to do so will result in loss of filing date.

RICHARD A. WAHL,
Nov. 21, 1968. *Assistant Commissioner.*

[857 O.G. 668]

(65) GUIDELINES FOR INCORPORATION BY REFERENCE IN PATENT APPLICATIONS

An application for a patent may incorporate essential material by reference to a United States patent, or an allowed U.S. application, subject to the conditions set out below. Essential material* is defined as that which is necessary (7) to support the claims, or (2) for adequate disclosure of the invention (35 U.S.C. 112). Material which is essential to the referencing application may not be incorporated by reference to patents issued by foreign countries or to non-patent publications. Essential material may not be incorporated by reference to a patent or application which itself incorporates essential material by reference.

The referencing application must include (1) an abstract, (2) a brief summary of the invention, (3) an identification of the referenced patent or application, (4) at least one view in the drawing in those applications admitting of a drawing, and (5) one or more claims. Where appropriate it would be advisable to direct particular attention to specific portions of the referenced patent or application.

If an application is filed with a complete disclosure, essential material may be cancelled by amendment and the *same* material substituted by reference to a patent or a pending and commonly owned allowed application in which the issue fee has been paid. The amendment must be accompanied by an affidavit executed by the applicant or his attorney or agent of record stating that the material cancelled from the application is the *same* material that has been incorporated by reference.

If an application incorporates essential material by reference to a U.S. patent or a pending and commonly owned allowed U.S. application for which the issue fee has been paid, applicant will be required prior to examination to furnish the Patent Office with a copy of the referenced material together with an affidavit executed by the applicant or his attorney or agent of record stating that the copy consists of the *same* material incorporated by reference in the referencing application.

If an application incorporates essential material by reference to a U.S. patent or a pending and commonly owned application other than one in issue with the fee paid, applicant will be required prior to examination to amend the disclosure of the referencing application to include the material incorporated by reference. The amendment must be accompanied by an affidavit executed by the applicant or his attorney or agent of record stating that the amendatory material consists of the *same* material incorporated by reference in the referencing application.

EDWARD J. BRENNER,
Commissioner.

Approved: Jan. 15, 1969.
JOHN F. KINCAID,
Assistant Secretary for Science and Technology.

Published in 34 F.R. 883; Jan. 18, 1969

*Non-essential subject matter may be incorporated by reference to patents issued by the United States or foreign countries, prior filed commonly owned patent applications filed in the United States, and non-patent publications for purposes of indicating the background of the invention or illustrating the state of the art.

[859 O.G. 346]

(66) INCORPORATION BY REFERENCE—FILING DATE

In clarification of the Notice of December 30, 1968, appearing in the OFFICAL GAZETTE of February 11, 1969, the following amplification is made.

The filing date of any application wherein essential material is incorporated by reference to a foreign patent or to a publication will not be affected because of the presence of such reference. In such a case, as well as any other case which improperly incorporates essential material by reference, the applicant will be required to amend the disclosure to include the material incorporated by reference. The amendment must be accompanied by an affidavit executed by the applicant or his attorney or agent of record stating that the amendatory material consists of the *same* material incorporated by reference in the referencing application.

ERRATUM

Attention is directed to the error in the above-mentioned notice appearing at 859 O.G. 346. Please delete the phrase, "a U.S. patent or", which was erroneously printed in the second line of the last paragraph.

RICHARD A. WAHL,
Mar. 7, 1969. *Assistant Commissioner.*

[A Notice covering this same subject, in slightly different form, has been published in 34 F.R. 5555, Mar. 22, 1969.]

[861 O.G. 680]

(67) PHOTOCOPIES OF APPLICATIONS

Many of the patent application papers received by the Patent Office are copies of the original, ribbon copy. These are acceptable if, in the opinion of the Office, they are legible and permanent. Legibility includes ability to be photocopied and photomicrographed so that suitable reprints can be made. This requires a high contrast, with black lines and a white background. Gray lines and/or a gray background sharply reduce photo reproduction quality.

Applicants should make every effort to file patent applications in a form that is clear and reproducible. The Office may accept for filing date purposes papers of reduced quality but will require that acceptable copies be supplied for further processing.

Additionally, legibility of some application papers becomes impaired due to abrasion or aging of the printed material during examination and ordinary handling of the file. It may be necessary to require that clear, legible copies be furnished at later stages after filing, especially when preparing for issue.

RICHARD A. WAHL,
Jan. 28, 1970. *Assistant Commissioner.*

[872 O.G. 341]

(68) DIVISIONAL APPLICATION PAPERS

In the interest of expediting the processing of newly filed divisional applications, filed as a result of a restriction requirement, applicants are requested to include the appropriate Patent Office classification on the papers submitted.

The appropriate classification for the divisional application may be found in the office communication of the parent case wherein the requirement was made. It is suggested that this classification designation be placed in the upper right hand corner of the letter of transmittal accompanying these divisional applications.

RICHARD A. WAHL,
June 5, 1970. *Assistant Commissioner of Patents.*

[875 O.G. 702]

(69) REDUCTION IN PATENT APPLICATION DISCLOSURE

Notice of proposed Guidelines for Preparation of Patent Application Disclosure was published in the Federal Register of January 14, 1969 (34 F.R. 524), and in the OFFICIAL GAZETTE of the Patent Office of February 4, 1969 (859 O.G. 1). Comments from the general public were invited.

After consideration of comments received, new guidelines are deemed unnecessary, even though the average length of specification seems to be increasing. Applicants and their attorneys are reminded that 35 U.S.C. 112 requires inventions to be described "in such full, clear, concise, and exact terms as to enable any person skilled in the art * * * to make and use the same * * *." To satisfy the "concise"

requirement, lengthy and unnecessary descriptive detail should be avoided.

WILLIAM E. SCHUYLER, JR.,
Commissioner of Patents.

Approved: July 24, 1970.

MYRON TRIBUS,
Assistant Secretary for Science and Technology.

[F.R. Doc. 70-9862; Filed, July 30, 1970; 8:45 a.m.]

35 F.R. 12296, July 31, 1970

[878 O.G. 1]

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(70) NEW SOLE-JOINT DECLARATION FORM

The sole declaration form, PO–1147, announced by the notice of May 28, 1971 (887 O.G. 1840) has been revised to permit its use in either sole or joint inventor applications. The revised form comprises two pages to provide space for the additional information. In most applications, only page 1 will be necessary, in which case only that page need be signed and submitted. Page 2 would be used only where insufficient space is available on page 1 to fully furnish the required information. If page 2 is used, page 1 need not be signed, and *all* signatures should appear on page 2.

Where appropriate, the present "sole" declaration form may be used.

Specific instructions appear on the form.

Single copies of the new form are available without charge for direct use or for reproduction purposes and may be picked up from the receptionist in Building No. 3 of the Patent Office at Crystal Plaza. Written requests for the form will be filled only if directed to the Commissioner of Patents, Office of Information Services, Washington, D.C., 20231. A stamped, self-addressed envelope must be enclosed.

RICHARD A. WAHL,
Apr. 17, 1972. *Assistant Commissioner.*

[898 O.G. 738]

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(71) DECLARATION AND POWER OF ATTORNEY FORM PO–1147 (REVISED) (3–72)

A revised Declaration and Power of Attorney Form, PO–1147 (Revised) (3–72), was recently issued and is supplied for use as a master copy for reproduction purposes. Experience with the revised form indicates that some confusion has been caused by the reference to "effective" filing date in item 600 of the form. The form is, therefore, being reprinted to delete the word "effective" from the descriptive language appearing in item 600. Persons who have copies of the old form may use the form by deleting the word "effective" before the form is reproduced. In this connection it is noted that the word "effective" appears three times in item 600, once on page 1 and twice on page 2.

RICHARD A. WAHL,
Aug. 28, 1972. *Assistant Commissioner for Patent Examining.*

[902 O.G. 1172]

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(72) TITLE 37—PATENTS, TRADEMARKS, AND COPYRIGHTS

CHAPTER I—PATENT OFFICE, DEPARTMENT OF COMMERCE

PART 1—RULES OF PRACTICE IN PATENT CASES

Formula and Table Format

On February 2, 1972, notice of proposed rule making regarding the amendment of §§ 1.52 and 1.75 and the addition of a new § 1.58 of Title 37, Code of Federal Regulations, dealing with Formula and Table Format, was published in the Federal Register (37 F.R. 2520). Interested persons were given until April 30, 1972, to submit written comments, suggestions, or objections. Full and careful consideration was given to all written comments received. In view of these comments the proposed rule language has been revised. The revised rules do not now require that the formulas and tables be presented on separate bristolboard sheets but simply require them to be presented in the specification in a form suitable for photographic reproduction.

These rule changes are intended to facilitate the microfilming of application papers and the printing of patents which contain formulas and tables in the text.

Under the new rules the text of printed patents would continue to be typeset, with formulas and tables being photographically reproduced and appearing at their proper location in the text. This procedure should result in a reduction of printing errors and costs.

This rule change also makes more liberal the size of paper permissible in patent applications.

In consideration of the comments received and pursuant to the authority contained in section 6 of the Act of July 19, 1952 (66 Stat. 793; 35 U.S.C. 6), Part 1 of Title 37, Code of Federal Regulations, is hereby amended as follows:

1. Section 1.52 is revised to read as follows:

§ 1.52 *Language, paper, writing, margins.*

(a) The specification and oath or declaration must be in the English language. All papers which are to become a part of the permanent records of the Patent Office must be legibly written or printed in permanent ink or its equivalent in quality. All of the application papers must be presented in a form having sufficient clarity and contrast between the paper and the writing or printing thereon to permit the production of readily legible copies in any number by use of photographic, electrostatic, photo-offset, and microfilming processes. If the papers are not of the required quality, substitute typewritten or printed papers of suitable quality may be required.

(b) The application papers (specification, including claims, oath, or declaration, papers as provided for in §§ 1.42, 1.43, 1.47, etc.) and also papers subsequently filed, must be plainly written on but one side of the paper. The size of all sheets of paper should be 8 to 8½ by 10½ to 13 inches (20.3 to 21.6 cm. by 26.6 to 33.0 cm.). A margin of 1½ inches (3.8 cm.) must be reserved on the left-hand side and on the top of each page of the specification, including claims. The lines must not be crowded too closely together; typewritten lines should be double spaced. The pages of the specification, including claims, should be numbered consecutively, starting with 1, the numbers being placed in the center of the bottom margins.

(c) Any interlineation, erasure, or cancellation or other alteration of the application papers as filed must have been made before the application was signed and sworn to or declaration made, and should be dated and initialed or signed by the applicant in a marginal note or footnote on the same sheet of paper to indicate such fact. No such alterations are permissible after execution of the application papers. (See § 1.56.)

2. A new § 1.58 is added to read as follows:

§ 1.58 *Chemical and mathematical formulas and tables.*

(a) The specification, including the claims, may contain chemical and mathematical formulas, but shall not contain drawings or flow diagrams. The description portion of the specification may contain tables; claims may contain tables only if necessary to conform to 35 U.S.C. 112.

(b) All tables and chemical and mathematical formulas in the specification, including claims, and amendments thereto, must be on pure white durable paper, the surface of which is calendered and smooth, in order to permit use as camera copy when printing any patent which may issue. A good grade of bond paper is acceptable; watermarks should not be prominent. India ink or its equivalent, or solid black typewriter ribbon must be used to secure perfectly black solid lines.

(c) To facilitate camera copying when printing, the width of formulas and tables as presented should be limited normally to 5 inches (12.7 cm.) so that it may appear as a single column in the printed patent. If it is not possible to limit the width of a formula or table to 5 inches (12.7 cm.), it is permissible to present the formula or table with a maximum width of 10¾ inches (27.3 cm.) and to place it sideways on the sheet, in which case the formula or table will appear printed across both columns of the page in the printed patent. Typewritten characters used in such formulas and tables must be from a block (nonscript) type font or lettering style having capital letters which are at least 0.085 inch (2.2 mm.) high (elite type). Hand lettering must be neat, clean, and have a minimum character height of 0.085 inch (2.2 mm.). A space at least ¼ inch (6.4 mm.) high should be provided between the formulas and tables and the text. Tables should have the

lines and columns of data closely spaced to conserve space, consistent with high degree of legibility.

§ 1.75 *[Amended]*

3. Section 1.75 is amended by adding at the end of paragraph (d)(1) the expression "(See § 1.58(a).)."

Effective date. These amendments shall become effective on January 1, 1973, and will apply to applications filed after that date.

RICHARD A. WAHL,
Acting Commissioner of Patents.

Approved: Oct. 12, 1972.

RICHARD O. SIMPSON,
Acting Assistant Secretary for Science and Technology.

[FR Doc. 72-17727 Filed 10-17-72; 8:48 am]

Published in 37 FR 21994, Oct. 18, 1972

[975 O.G. 255]

PRIORITY APPLICATIONS

(73) REISSUE APPLICATIONS—FOREIGN PRIORITY

A "claim" for the benefit of an earlier filing date in a foreign country under 35 U.S.C. 119 must be made in a reissue application even through such a claim was made in the application on which the original patent was granted. However, no additional certified copy of the foreign application is necessary. The procedure is similar to that for "Continuing Applications" in the last paragraph of MPEP 201.14(b).

The heading on printed copies will not be carried forward to the reissue from the original patent. Therefore, it is important that the file wrapper be endorsed under "Claims Foreign Priority."

RICHARD A. WAHL,
Acting Superintendent Patent Examining Corps.

[807 O.G. 579 (Oct. 20, 1964)]

(74) FILING OF PRIORITY PAPERS

In view of the shortened periods for prosecution leading to allowances, it is recommended that priority papers be filed as early as possible. Although Rule 55 permits the filing of priority papers up to and including the date for payment of the final fee, it is advisable that such papers be filed promptly after filing the application. Frequently priority papers are found to be deficient in material respects such as, for example, the failure to include the correct certified copy and there is not sufficient time to remedy the deficiency. Occasionally a new oath may be necessary where the original oath omits the reference to the foreign filing date for which the benefit is claimed. The early filing of priority papers would thus be advantageous to applicants in that it would afford time to explain any inconsistencies that exist or to supply any additional documents that may be necessary.

It is also suggested that a pencil notation of the serial number of the corresponding U.S. application be placed on the priority papers.

RICHARD A. WAHL,
Dec. 1, 1965. *Assistant Commissioner.*

[821 O.G. 1261]

(75) EFFECTIVE DATE OF UNITED STATES PATENT

In section 706.02, delete penultimate paragraph.

Rewrite section 715.01 to read:

The effective date of a United States Patent for use as a prior art reference is not affected by the foreign filing date to which the patentee may be entitled under 35 U.S.C. 119. *In re Hilmer*, 833 O.G. 13, 149 USPQ 480 (CCPA 1966); *Lilly et al.* v. *Brenner*, 153 USPQ 95 (C.A.D.C. 1967). The reference patent is effective as of the date the application for it was filed in the United States (35 U.S.C. 102(e) and 103). *Hazeltine Research, Inc. et al.* v. *Brenner*, 824 O.G. 8 (U.S. Supreme Court 1965).

RICHARD A. WAHL,
Apr. 5, 1967. *Assistant Commissioner.*

[838 O.G. 1]

(76) PATENT HEADINGS

As a service to the public, beginning with the issue of January 16, 1968, the heading of the printed patent will include all identifying parent data of continuation-in-part applications as is now the practice in continuation, divisional, substitute, and reissue applications. It should be noted, however, that inclusion of this information in the heading does not necessarily indicate that the claims are entitled to the benefit of the earlier filing date.

The above practice will not change the procedure with regard to assignments as set forth in the first sentence of paragraph 2 of Section 306 of the M.P.E.P.

RICHARD A. WAHL,
Dec. 18, 1967. *Assistant Commissioner.*

[846 O.G. 337]

(77) CHAINS OF CONTINUING APPLICATIONS

In view of the decision of the Court of Customs and Patent Appeals in *In re Henriksen* (158 USPQ 224) the application of 35 U.S.C. 120 will no longer be limited to a chain of three successively filed continuing cases.

Accordingly, Change Notice 12-8 is rescinded.

RICHARD A. WAHL,
Aug. 9, 1968. *Assistant Commissioner of Patents.*

[854 O.G. 559]

(78) FOREIGN PRIORITY OF CONTINUING APPLICATION

If the Examiner is aware of the fact that the parent of a continuing application has fully complied with the requirements of 35 U.S.C. 119 and is therefore entitled to the benefit of the filing date of an earlier filed foreign application, he should direct it to the applicant's attention in an Office action, as in the following exemplary language:

"Applicant is reminded that in order to be entitled to priority based on papers filed in parent application Serial No. ---------- under 35 U.S.C. 119, a claim for such priority must be made in this application. In making such claim, applicant may simply call attention to the fact that a certified copy of the foreign application is in the parent application (M.P.E.P. 201.14(b))."

RICHARD A. WAHL,
Aug. 30, 1968. *Assistant Commissioner.*

[855 O.G. 1]

(79) GERMANY: NEW REQUIREMENT FOR SUBMISSION OF COPY OF ORIGINAL APPLICATION IN CONVENTION CASES

Under Section 27 of the German Patent Law which came into effect October 1, 1968, all applicants submitting a claim of priority in Germany under the Paris Union will be required to submit a copy of the application upon which the claim for priority is based. The U.S. Patent Office has been advised by the German Office that the copy need *not* be certified correct by the Office in which the application was originally filed.

Accordingly, for U.S. applicants, one method of complying with the new law would be to accompany the German filing with a copy of the prior U.S. applications as filed. This copy can be produced by the applicant himself.

If the applicant does not submit the copy at the time of filing, the German Office will issue, within two months after the German filing, a request to submit the copy. Failure to submit the required copy within two months after notification results in loss of the priority claim.

With respect to application on file in Germany prior to October 1, 1968, the following applies:

Copies of the original application will not be required for those applications already on file if the serial number of the application on which the priority claim is based had been communicated to the German Patent Office prior to October 1, 1968.

With regard to applications on file prior to October 1, 1968, for which the U.S. serial number is communicated after October 1, 1968, the reques: for the copy of the U.S. application will be made together with the notice preceding the laying open to public inspection of the file of the German application.

GERALD D. O'BRIEN,
Jan. 13, 1968. *Assistant Commissioner.*

[859 O.G. 345]

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(80) PARIS CONVENTION FOR THE PROTECTION OF INDUSTRIAL PROPERTY

Entry Into Force of Articles 1–12

The Director General of the World Intellectual Property Organization announced on May 25, 1973, the deposit by the United States of letters of ratification of Articles 1–12 of the Paris Convention for the Protection of Industrial Property of 1883, as revised at Stockholm on July 14, 1967, with the declaration of applicability to all territories and possessions of the United States, including the Commonwealth of Puerto Rico. By operation of the Convention, Articles 1–12 will enter into force with respect to the United States on August 25, 1973, three months after the date of the above notification by the Director.

To carry into effect provisions of the Stockholm Revision of the Paris Convention, the United States has enacted Public Law 92–358, July 28, 1972, which in Section (1) amends 35 U.S.C. 119 to accord under certain circumstances rights of priority to a U.S. patent application based on an earlier filed application for an inventor's certificate and in Section (2) amends 35 U.S.C. 102(d) to provide that under certain circumstances an inventor's certificate becomes a statutory bar to the grant of a U.S. patent.

By the terms of this statutory enactment, Section (1) will enter into force with respect to the United States on the date when Articles 1–12 of the Stockholm Revision of the Paris Convention of March 20, 1883 come into force with respect to the United States, which will be August 25, 1973. A Patent Office rule change implementing this section of the public law by the addition of a new paragraph (c) to § 1.55 (37 CFR 1.55(c)) has been adopted and has been published in the FEDERAL REGISTER, Vol. 38, No. 71, on April 13, 1973.

This statutory enactment also provides that Section (2) will take effect six months from the date when Articles 1–12 of the Stockholm Revision of the Paris Convention come into force with respect to the United States. Accordingly, this date will be February 25, 1974.

The full text of Public Law 92–358, dated July 28, 1972 together with the implementing Patent Office regulation, are reproduced below:

PUBLIC LAW 92–358, JULY 28, 1972

To carry into effect a provision of the Convention of Paris for the Protection of Industrial Property, as revised at Stockholm, Sweden, July 14, 1967.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That section 119 of title 35 of the United States Code, entitled "Patents" is amended by adding at the end thereof the following paragraph:

"Applications for inventors' certificates filed in a foreign country in which applicants have a right to apply, at their discretion, either for a patent or for an inventor's certificate shall be treated in this country in the same manner and have the same effect for purpose of the right of priority under this section as applications for patents, subject to the same conditions and requirements of this section as apply to applications for patents, provided such applicants are entitled to the benefits of the Stockholm Revision of the Paris Convention at the time of such filing."

Sec. 2. Subsection 102(d) of title 35 of the United States Code is amended to read as follows:

"(d) the invention was first patented or caused to be patented; or was the subject of an inventor's certificate, by the applicant or his legal representatives or assigns in a foreign country prior to the date of the application for patent in this country on an application for patent or inventor's certificate filed more than twelve months before the filing of the application in the United States, or."

Sec. 3. (a) Section 1 of this Act shall take effect on the date when Articles 1–12 of the Paris Convention of March 20, 1883, for the Protection of Industrial Property, as revised at Stockholm, July 14, 1967, come into force with respect to the United States and shall apply only to applications thereafter filed in the United States.

(b) Section 2 of this Act shall take effect six months from the date when Articles 1–12 of the Paris Convention of March 20, 1883, for the Protection of Industrial Property, as revised at Stockholm, July 14, 1967, come into force with respect to the United States and shall apply to applications thereafter filed in the United States.

TITLE 37—PATENTS, TRADEMARKS AND COPYRIGHTS

CHAPTER 1—PATENT OFFICE, DEPARTMENT OF COMMERCE

PART 1—RULES OF PRACTICE IN PATENT CASES

§ 1.55 *Serial number and filing date of application.* * * *

(c) An applicant may under certain circumstances claim priority on the basis of an application for an inventor's certificate in a country granting both inventor's certificates and patents. When an applicant wishes to claim the right of priority as to a claim or claims of the application on the basis of an application for an inventor's certificate in such a country under 35 U.S.C. 119, last paragraph (as amended July 28, 1972), the applicant or his attorney or agent, when submitting a claim for such right as specified in paragraph (b) of this section, shall include an affidavit or declaration including a specific statement that, upon an investigation, he has satisfied himself that to the best of his knowledge the applicant, when filing his application for the inventor's certificate, had the option to file an application either for a patent or an inventor's certificate as to the subject matter of the identified claim or claims forming the basis for the claim of priority.

Dated: August 20, 1973.

RENE D. TEGTMEYER,
Acting Commissioner of Patents.

Approved: August 22, 1973.
BETSY ANCKER-JOHNSON,
Assistant Secretary for Science and Technology.

[FR Doc. 73-18260; Filed 8-28-73; 8:45 a.m.]

[914 O.G. 1156]

DRAWINGS

(81) PHOTOPRINTS AS DRAWINGS—FILING DATE ONLY

Effective September 1, 1964 the Application Branch is authorized and directed to accept all applications in which photoprints have been submitted in lieu of formal drawings, and to forward them to the Examiner, who will notify the applicant immediately that the application has been accepted *for filing only*, and that to be entitled to examination, the applicant must file formal drawings complying with Rule 84 within 60 days, and pay the cost of comparing the photoprints with the formal drawings.

A comparison charge of $10.00 per hour, with a minimum charge of $10.00 per application is hereby established. This charge may be applied against deposit accounts and authorization to charge such accounts should be included when the formal drawings are filed. For those who have no deposit account acceptance of the formal drawings will be contingent upon payment of the comparison charge within the period set.

This notice supersedes the notice of April 24, 1964, published May 26, 1964, in 802 O.G. 871.

EDWARD J. BRENNER,
July 16, 1964. *Commissioner.*

[805 O.G. 3]

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(82) NEW DRAWINGS PREPARED BY PATENT OFFICE

In Section 608.02(x) the paragraphs headed "New Drawings Prepared by Patent Office" are cancelled and the following substituted therefor:

When new drawings have been required in pending applications and have been prepared by the Office draftsman, they are not sent to the applicant for his signature but a copy (print) is sent to him for his file. The name of the inventor(s) will be printed on the drawings by the Office draftsman.

In the event that the application is in condition for allowance, the application will be sent to Issue immediately after the drawing is prepared.

RICHARD A. WAHL,
Jan. 6, 1966. *Assistant Commissioner.*

[823 O.G. 1]

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(83) TRANSFER OF DRAWINGS

In view of the recent amendment of Rule 138 to permit the express abandonment of patent applications by the attorney, there is no longer any sufficient reason for delaying the formal abandonment of an application after all the drawings thereof have been transferred to another case. Accordingly, effective February 1, 1967, no request to transfer all the drawings from a pending application will be granted unless and until a formal abandonment of the application has been filed. In order to insure copendency, such an abandonment may be so worded as to become effective only after the transfer of the drawings has taken place.

EDWARD J. BRENNER,
Dec. 15, 1966. *Commissioner.*

[834 O.G. 431]

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(84) GRAPHIC SYMBOLS FOR PATENT DRAWINGS

Rule 84(g) of the Rules of Practice in Patent Cases indicates that graphic drawing symbols and other labeled representations may be used for conventional elements where appropriate, subject to approval by the Office. Also, suitable legends may be used, or may be required, in proper cases.

The Rules of Practice pamphlet has, since the turn of the century, included a section entitled "Symbols for Draftsman" showing various symbols which may be used on patent application drawings. Although these symbols still reflect current practice they are somewhat limited in number and scope. A more complete set of symbols might be beneficial to both the Office and the public since it would foster uniformity of presentation, and more informative drawings. However, for the Office to develop and maintain a substantially complete listing of all graphic drawing symbols would be both difficult and time-consuming.

Therefore, since the American National Standards Institute Inc., 1430 Broadway, New York, N.Y., 10018, publishes a series of publications relating to graphic symbols under its Y32 and Z32 headings, the Office is calling the attention of patent applicants to these symbols for their consideration and use where appropriate in patent drawings. The below listed publications have been reviewed by the Office and the symbols therein are considered to be generally acceptable in patent drawings. Although the Office will not "approve" all of the listed symbols as a group because their use and clarity must be decided on a case-by-case basis, these publications may be used as guides when selecting graphic symbols. Overly specific symbols should be avoided. Symbols with unclear meanings should be labeled for clarification. As noted in Rule 84(g), the Office will retain final authority to approve the use of any particular symbol in any particular case.

The reviewed publications are the following:

Y32.2–1970. Graphic Symbols for Electrical and Electronics Diagram	$11.50
Y32.10–1967. Graphic Symbols for Fluid Power Diagrams	3.00
Y32.11–1961. Graphic Symbols for Process Flow Diagrams in the Petroleum and Chemical Industries	2.00
Y32.14–1962. Graphic Symbols for Logic Diagrams	4.75
Z32.2.3–1949 (R1953). Graphic Symbols for Pipe Fittings, Valves and Piping	2.00
Z32.2.4–1949 (R1953). Graphic Symbols for Heating, Ventilating and Air Conditioning	2.00
Z32.2.6–1950. Graphic Symbols for Heat-Power Apparatus	2.00

No change in the Rules of Practice is considered necessary at this time.

The above list of publications will be included in the Manual of Patent Examining Procedure.

RICHARD A. WAHL,
May 19, 1972. *Assistant Commissioner.*

[899 O.G. 1230]

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(85) LATE SUBMISSION OF FORMAL DRAWINGS

In those situations where an application is filed with informal drawings, applicants are requested to wait until they receive their "Notice of Informal Drawings" form, PO–1094, from the Group Art Unit before submitting the formal drawings and the comparison fee. The letter of transmittal accompanying the formal drawings should identify the Group Art Unit indicated on Form PO–1094. Also, each sheet of drawing should include the serial number and Group Art Unit in the upper right margin. In the past, some drawings have been misdirected because the Group Art Unit indicated on the filing receipt was used rather than that indicated on Form PO–1094.

WILLIAM FELDMAN,
June 28, 1973. *Acting Assistant Commissioner for Patents.*

[912 O.G. 1229]

EXAMINATION OF APPLICATIONS

(86) INFORMAL APPLICATIONS OF FOREIGN APPLICANTS

This Notice is of special interest to attorneys and agents prosecuting applications on inventions originating abroad.

Many applications filed in this Office correspond in form and substance to the requirements (regulations) of countries foreign to the United States. Since they were not originally drafted to comply with our Rules of Practice, especially those based on 35 U.S.C. 112, the first examination cannot be the full and complete one contemplated under current examining procedures. This first examination is necessarily limited, under MPEP 702.01, to pointing out the informalities and citing the results of a search, the search being based upon the invention so far as it can be understood from the foreign type of claims, often coupled with a somewhat generalized disclosure. Since U.S. Patent Office policy is to accord equal treatment to *all* cases regardless of origin, current examining procedures as explained in the address reprinted in 803 O.G. 893, subject these applications to final determination on the second action. It is obviously to applicant's advantage to *file* the application with an adequate disclosure and with claims which conform to the U.S. Patent Office usages and requirements. This should be done whenever possible. If, however, due to the pressure of a Convention deadline or other reasons, this is not possible, applicants are urged to submit *promptly, preferably within three months after filing,* a preliminary amendment which corrects the obvious informalities. The informalities should be corrected to the extent that the disclosure is readily understood and the claims to be initially examined are in proper form, particularly as to dependency, and otherwise clearly define the invention. "New matter" must be

excluded from these amendments since preliminary amendments do not enjoy original disclosure status, section 608.04(b), MPEP.

EDWARD J. BRENNER,
Mar. 4, 1965. *Commissioner of Patents.*

[812 O.G. 1295]

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(87) TERMINAL DISCLAIMERS FILED IN APPLICATIONS

In view of the increasing number of terminal disclaimers being filed in pending applications under 35 U.S.C. 253, it is considered advisable to point out the practice to be followed in such cases.

Since the claims of pending applications are subject to cancellation, amendment or remembering, a terminal disclaimer directed to a particular claim or claims will not be accepted; the disclaimer must be of a terminal portion of the term of the entire patent to be granted. The statute does not provide for conditional disclaimers and accordingly, a proposed disclaimer which is made contingent on the allowance of certain claims cannot be accepted. The disclaimer should identify the disclaimant and his interest in the application and should specify the date when the disclaimer is to become effective. An acceptable form for such a disclaimer is as follows:

To the Commissioner of Patents:

Your petitioner, John Doe, residing at _____ in the county of _____ and State of _____ represents that he is (here state exact interest of the disclaimant and, if he is an assignee, set out the liber and page or reel and frame where the assignment is recorded) of application No. _____, filed on the _____ day of _____ 19__ for _____. Your petitioner hereby disclaims all that portion of the term of any patent to be issued on the said application subsequent to _____ 19__.

The disclaimer must be accompanied by the statutory fee.

EDWARD J. BRENNER,
Apr. 26, 1965. *Commissioner.*

[814 O.G. 359]

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(88) PRACTICE RE: TECHNICAL REJECTIONS

In the interest of reducing the number of technical rejections and expediting the prosecution of applications the following changes will be instituted effective June 1, 1965:

1. The inclusion of a negative limitation shall not, in itself, be considered a sufficient basis for objection to or rejection of a claim. However, if such a limitation renders the claim unduly broad or indefinite or otherwise results in a failure to point out the invention in the manner contemplated by 35 U.S.C. 112, an appropriate rejection should be made.

2. When materials recited in a claim are so related as to constitute a proper Markush group, they may be recited either in the conventional manner heretofore permitted, or alternatively. For example, if ". . . wherein R is a material selected from the group consisting of A, B, C and D" is a proper limitation then ". . . wherein R is A, B, C or D" shall also be considered proper.

3. The use of Markush claims of diminishing scope shall not, in itself, be considered a sufficient basis for objection to or rejection of claims. However, if such a practice renders the claims indefinite or if it results in undue multiplicity, an appropriate rejection shall be made. This change does not in any way affect the substantive law governing the treatment of Markush claims. The foregoing practice with respect to Markush claims of diminishing scope will be effective on an experimental basis until December 1, 1965, and, if it proves satisfactory, will then be adopted permanently.

EDWARD J. BRENNER,
Apr. 30, 1965. *Commissioner.*

[814 O.G. 715]

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(89) "SPECIAL" EXAMINING PROCEDURE FOR CERTAIN NEW APPLICATIONS

The trial of "Special" Examining Procedure for Certain New Applications as announced in 812 O.G. 953 and later modified by 817 O.G. 423 indicates the desirability of making such procedure available on a standard operating basis. Accordingly, an additional category is being added to the list of situations in which an application may be advanced out of turn for examination, Rule 102 and M.P.E.P. 708.01 and 708.02. The M.P.E.P. will be rewritten to incorporate this practice.

Certain further modifications have been incorporated into the conditions and procedure; most importantly, the new case now may be a continuing or divisional application, the prohibition against an application having an earlier effective U.S. filing date has been removed. Original limits on filing date and on number in any Group have previously been deleted.

The full text of conditions and procedures now applicable appears below, and the notices in 812 O.G. 953 and 817 O.G. 423 are accordingly rendered obsolete.

REQUIREMENTS AND PROCEDURES TO EFFECT ACCELERATED EXAMINATION OF NEW APPLICATIONS

Requirements Precedent to Grant of Special Status for Accelerated Examination

A new application (one which has not received any examination by the examiner) may be granted special status provided that applicant (and this term includes applicant's attorney or agent) concurrently:

(a) Submits a written petition to make special.

(b) Agrees that the application will not include more than ten claims at any time. Should the pending application contain more than ten claims when the request for special status is filed, an amendment must be proposed at that time to reduce the number to not more than ten, which amendment will be entered only if the special status is granted. All of the claims presented for this special prosecution must obviously be directed to a single invention.

(c) Submits a statement that a pre-examination search was made, and specifying whether by the inventor, attorney, professional searchers, etc., and listing the field of search by class and subclass, publication, chemical abstracts, foreign patents, etc.

(d) Submits one copy each of the references deemed most closely related to the subject matter encompassed by the claims.

(e) Submits a detailed discussion of the references, which discussion points out, with the particularity required by Rule 111(b) and (c), how the claimed subject matter is distinguishable over the references. Where applicant indicates an intention of overcoming one of the references by affidavit under Rule 131, the affidavit must be submitted before the application is taken up for action, but in no event later than one month after request for special status.

In those instances where the request for this special status does not meet all the prerequisites set forth above, applicant will be notified and the defects in the request will be stated. The application will remain in the status of a new application awaiting action in its regular turn. In those instances where a request is defective in one or more respects, applicant will be given *one* opportunity to perfect the request. If perfected, the request will then be granted.

Once a request has been granted, prosecution will proceed according to the procedure set forth below; there is no provision for "withdrawal" from this special status.

Special Examining Procedure

1. The new application, having been granted special status as a result of compliance with the requirements set out in the section titled "Requirements Precedent to Grant of Special Status for Accelerated Examination," supra, will be taken up by the Examiner before all other categories of applications except those clearly in condition for allowance and these with set time limits, such as Examiner's Answers, Decisions on Motions, etc., and will be given a complete first action which will include *all* essential matters of merit as to all claims.

The Examiner's search will be restricted to the *subject matter encompassed by the claims.* This first action will terminate with the setting of a three-month shortened period for response.

2. During the three-month period for response, applicant is encouraged to arrange for an interview with the Examiner in order to resolve, with finality, as many issues as possible. In order to afford the Examiner time for reflective consideration before the interview, applicant or his representative should cause to be placed in the hands of the Examiner at least one working day prior to the interview, a copy (clearly denoted as such) of the amendment that he proposes to file in response to the Examiner's action. Such a paper will not become a part of the file, but will form a basis for discussion at the interview.

3. Subsequent to the interview, or responsive to the Examiner's first action if no interview was had, applicant will file his "record" response. The response at this stage, to be proper, must be restricted to the rejections, objections, and requirements made. Any amendment which would require broadening the search field will be treated as not a proper response.

4. The examiner will within one month from the date of receipt of applicant's formal response, take up the application for final disposition. This disposition will constitute either a final action which terminates with the setting of a three-month period for response, or a notice of allowance. No further response will be made by the Examiner after a final action with the exceptions that (a) an Examiner's Answer may be prepared in response to an appeal brief, or (b) the application may be passed to issue.

5. A personal interview after final Office action will not be permitted unless requested by the Examiner. However, telephonic interviews will be permitted where appropriate for the purpose of correcting any minor matters which remain outstanding.

RICHARD A. WAHL,
Dec. 14, 1965. *Assistant Commissioner.*

[822 O.G. 2]

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(90) SPECIAL EXAMINING PROCEDURE FOR CERTAIN NEW APPLICATIONS

The practice of granting special status to certain new applications as set forth in the Notice of December 14, 1965, 822 O.G. 2, is modified to the extent indicated below in the case where the Office determines that all of the claims presented are not obviously directed to a single invention.

Where the claims in a case are directed to more than one invention, an election without traverse will be a prerequisite to the grant of special status.

The election may be made by applicant at the time of filing the petition for special status. Should applicant fail to include an election with the original papers or petition and the Office determines that a requirement should be made, the established telephone restriction practice will be followed.

If otherwise proper, examination on the merits will proceed on claims drawn to the elected invention.

If applicant refuses to make an election without traverse, the application will not be further examined at that time. The petition will be denied on the ground that the claims are not directed to a single invention, and the application will await action in its regular turn.

Divisional applications directed to the non-elected inventions will *not* automatically be given special status based on papers filed with the petition in the parent case. Each such application must meet on its own all requirements for the new special status.

RICHARD A. WAHL,
Mar. 21, 1967. *Assistant Commissioner.*

[837 O.G. 667]

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(91) SPECIAL EXAMINING PROCEDURE

The Special Examining Procedure whereby a new application may be granted special status and advanced for examination is hereby revised to remove the condition limiting the application to no more than ten claims. The petition for special status will be granted regardless of the number of claims pending in the application at any time provided all other remaining conditions of this program are met (see MPEP 708.02).

RICHARD A. WAHL,
June 12, 1968. *Assistant Commissioner.*

[852 O.G. 509]

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(92) PROSECUTION OF PATENT APPLICATIONS AFTER FINAL ACTION

Experience over the past several months indicates the need to re-emphasize certain areas of examining procedure outlined In Assistant Commissioner Wahl's address to the Patent Examining Corps on September 24, 1965 (819 O.G. 893). Certain paragraphs or parts thereof are quoted below, with emphasis added.

"It is planned, accordingly, that prosecution before the examiner should be essentially concluded after applicant's first response and the examiner's reply thereto. *No amendments to claims, nor new claims, should be entered after final rejection, except in rare instances, unless it is readily apparent that these place the case in condition for allowance or materially reduce or simplify the issues for appeal. Also, no amendments should be entered which raise new issues or require further search.* However, if a response to a final rejection is received and it would clearly place the case in condition for allowance except for minor matters which could be cleared up over the telephone, the examiner should telephone applicant or his attorney or agent to try to promptly clear up such matters."

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"In general, a very complete and thoroughly considered first response by applicant will be in order because it will determine the form and content of the claims, not only for the final consideration by the examiner, but also by the Board of Appeals if appeal be taken. In this connection, attention is directed to suggestions set forth in notices in the OFFICIAL GAZETTE in recent years that applicant should include in his application at the time of filing, or after the first complete action, the most detailed claim that he would be willing to accept as well as the broadest claim to which he considers himself entitled."

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"A third change in procedure is that in all cases wherein the examiner decides that a requirement for restriction to one invention or for election of species must be made, a telephone call will be made to applicant or his representative advising him of the situation and requesting a prompt election by return telephone call if the decision cannot be made immediately. When the election is made by telephone, the examiner in his action will make of record the complete requirement and will state the date of the call, the name of the applicant or his representative who made the election, and the result of the election. Such restriction or election requirements will, of course, be subject to written requests for reconsideration (traverse) in accordance with Rule 143. If no reply is received to the examiner's telephoned requirement within a reasonable period, about three working days, he will proceed to make the requirement in a written action as heretofore."

In further implementation of these precedures, the following paragraphs add further details to take effect on the date of this notice and to apply to all Office actions taken or written, and to all communications received from applicant, on or after the effective date.

FINAL ACTION AND PRE-APPEAL

The prosecution of an application before the examiner should ordinarily be concluded with the final action. However, one personal interview and one written response by applicant may be entertained after such final action if circumstances warrant. Thus, only one request by applicant for a personal interview after final should be granted, but

in exceptional circumstances, a second personal interview may be initiated by the *examiner* if in his judgment this would *allowance*. Any amendment submitted under Rule 116(a) and Rule 116(b) *for purposes of appeal* should be presented in materially assist in placing the application in condition for the first response after final action and will be considered as heretofore; if any amendments are submitted after the examiner's reply to such first response, they should be refused entry as not warranted at this stage of prosecution, even though such amendments allegedly present rejected claims in better condition for appeal. Similarly, no affidavit should be considered if presented later than with the first response after final unless a showing is made under Rule 116(b).

The practice will be continued of advising applicant by means of the recently introduced form letter (POL–303) as to the disposition of proposed amendments to the claims and as to the effect of any argument or affidavit submitted in the *first* response after final action.

If a response subsequent to the first response after final action is received before appeal and which *on its face* clearly places the application in condition for allowance, it should be entered and a notice of allowability (POL–255) promptly sent to applicant; if such subsequent response does not *on its face* place the application in condition for allowance, it should not be considered further (unless, in the examiner's judgment, there are only minor matters which could be readily cleared up in a telephone interview leading to a notice of allowance) and should be refused entry. A form letter (POL–309) will be used for notification that such subsequent responses do not place the application in condition for allowance.

Requests for extension of the shortened statutory period for reply after final action, under Rule 130(b), will be considered by the Primary Examiner and if granted will be for not more than one month; petitions for further extensions will be decided by the Commissioner or his designees in this matter. It should be noted that, under Rule 181(f), the filing of a Rule 181 petition will not stay the period for reply to an Examiner's action which may be running against an application.

APPEAL AND POST-APPEAL

The record on appeal should be essentially the record before the examiner at the time appeal is taken. Thus, no amendments, except under Rule 193(b), presented after appeal has been taken should be entered *for purposes of appeal, and no exception should be made to this*, see Rule 116(c). Amendments, arguments, or affidavits filed concurrently with or of even date with appeal notice will be construed as filed after appeal for the purpose of this procedure, even though they may be the first response to the final action. In accordance with Rule 195, affidavits or exhibits submitted after the case has been appealed should be considered for entry *only if applicant makes the necessary showing* why they were not earlier presented; Rule 195 should be strictly construed in this regard. If after appeal has been taken, a paper is presented which *on its face* clearly places the application in condition for allowance, such paper should be entered and a notice of allowability (POL–255) promptly sent to applicant. If such paper does not *on its face* place the application in condition for allowance, it should not be considered further (unless in the examiner's judgment there are only minor matters which could be readily cleared up in a telephone interview leading to a notice of allowance) and proposed amendments therein should not be entered. Notification that such papers do not place the application in condition for allowance will be made by use of a form letter (POL–309).

In accordance with the above, the Brief should be directed to the claims and to the record of the case as they appeared upon filing the appeal, but it may, of course, withdraw from consideration on appeal any claims or issues as desired by appellant.

Upon timely filing of a Brief, it will be referred to the examiner for his consideration of its propriety as to the appeal issues and for preparation of an Examiner's Answer if the Brief is proper and the application is not allowable. The Examiner's Answer will normally be of the shortened type referring to and relying on the final action; it may withdraw rejection of claims or any objection or requirement as desired by the examiner. No new ground of rejection or objection should be incorporated in the Examiner's Answer *without express approval in each case by the Group Manager.*

RESTRICTION AND ELECTION

A basic policy of the streamlined examining program is that the second action on the merits should be made final. In those applications wherein a requirement for restriction or election is accompanied by the rejection of linking or generic claims, such action will be considered to be an action on the merits and the next action by the examiner should be made final. It may thus be to applicant's advantage to make a telephone election in such cases prior to the first action.

Requirements for restriction or election will continue to be governed by existing criteria. However, in stating a requirement for restriction hereafter there should be no citation of patents to show separate status or classification or utility. The separate inventions should as heretofore be identified by a grouping of the claims with a short description of the total extent of the invention claimed in each group, specifying the type or relationship of each group as by stating the group is drawn to process, or to subcombination, or to product, etc., and should indicate the classification or separate status of each group, as for example, by class and subclass.

The period for response to a requirement for restriction or election, where there is no rejection of claims, will hereafter be set at 30 days.

MANUAL OF PATENT EXAMINING PROCEDURE

Procedures currently set forth in the Manual of Patent Examining Procedure which may be in conflict with the above are superseded by those anounced above. Change Notices and replacement pages will be issued in dr course.

MANUAL OF CLERICAL PROCEDURE

This information will also be incorporated in the Manual of Clerical Procedure.

RICHARD A. WAHL.

[824 O.G. 4 (Mar. 1, 1966)]

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(93) DOUBLE PATENTING

In view of the uncertain situation which has arisen as a result of recent decisions dealing with "double patenting" it is thought to be advisable to restate the practice which should be followed in this area, particularly as regards the effect of terminal disclaimers. The term "double patenting" is properly applicable only to cases involving two or more applications and/or patents of the same inventive entity and should not be applied to situations involving commonly owned cases of different inventive entities. Sole and joint inventors cannot constitute a single entity, nor do two or more sets of joint inventors constitute a single entity if any individual is included in either set who is not also included in the other.

If two or more cases are filed by a single inventive entity, and if the expiration dates of the patents, granted or to be granted, are the same, either because of a common issue date or by reason of the filing of one or more terminal disclaimers, two or more patents may properly be granted, if the claims do not overlap, even though the subject matter to which the claims of one case are directed may be obvious in view of the subject matter claimed in the other case. *In re Robeson*, 1964 C.D. 561, 141 USPQ 485; *In re Kaye*, 1964 C.D. 630, 141 USPQ 829. Claims overlap within the meaning of this statement if it is possible for them to be infringed by the same process, machine, manufacture, or composition of matter. Cross reading is not necessary to constitute such an overlap.

Overlapping claims should not be allowed in cases filed by the same inventive entity if they are directed to identical inventive concepts, or if the concept to which one set of claims is directed would be obvious in view of that to which the other set is directed. This is true regardless of the relative filing dates of the cases or the relative scope of the claims.

In situations involving cases filed by different inventive entities, regardless of ownership, Sections 102 and 103 of 35 U.S.C. preclude the granting of two or more patents when directed to identical inventive concepts or when one of the concepts would be obvious in view of the other. A terminal disclaimer can have no effect in this situation since the basis for refusing more than one patent is not connected with any extension of monopoly.

In view of 35 U.S.C. 135, it is necessary to determine priority of invention whenever two different inventive entities are claiming a single inventive concept, and this determination

should ordinarily be made before any patent is issued. This is true regardless of ownership, and the provision of Rule 201(c) that interferences will not be declared or continued between commonly owned cases unless good cause is shown therefor does not mean that two patents are to be allowed in such cases, but that the common assignee should be called on to state which of the entities involved is prior to the other in date of invention.

Accordingly, the assignee of two or more cases of different inventive entities, containing conflicting claims, should be called on to maintain a line of demarcation between them. If such a line is not maintained then, when one of the cases is in condition for allowance, claims covering the conflicting subject matter should be suggested as provided in Rule 203, care being taken to insure that such claims cover all the conflicting matter and the assignee should be called on to state which entity is the prior inventor of that subject matter and to limit the claims of the other application accordingly. If the assignee does not comply with this requirement and presents the interfering claims in both cases, an interference should be declared, attention being directed to Rule 208 if there is a common attorney. If suggested claims are not presented within the time allowed, rejection should be made on the ground of disclaimer as indicated in Rule 203(b).

In the event that a common assignee, after taking out a patent on one of two or more applications, for the first time presents claims in a pending application which are not patentably distinct from claims of the patent, the claims of the application should be rejected on the ground that the assignee, by taking out the patent at a time when the application was not claiming the patented invention, is estopped to contend that the patentee is not the prior inventor.

If a patent is inadvertently issued on one of two commonly owned applications by different inventive entities which at the time when the patent issued were claiming inventions which are not patentably distinct, the assignee should be called on to make a determination of priority as in the case of pending applications and, if no election is made, an interference should be declared. An election of the applicant as the first inventor should not be accepted without a complete (not terminal) disclaimer of the conflicting claims in the patent.

EDWARD J. BRENNER,
Jan. 9, 1967. *Commissioner.*

[834 O.G. 1615]

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(94) MODIFICATION OF NOTICE OF JANUARY 31, 1967

The practice set forth in the notice of January 31, 1967, entitled "Double Patenting" (834 O.G. 1615), is modified to the extent that when a single inventive entity is involved a terminal disclaimer will be accepted to avoid a double patenting rejection even if the claims overlap, if the claims which would otherwise be subject to such rejection could not have been allowed in the other application or patent, and if the terminal disclaimer further provides that the patent shall expire immediately if it ceases to be commonly owned with the other application or patent.

EDWARD J. BRENNER,
Feb. 14, 1968. *Commissioner.*

[848 O.G. 1]

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(95) DOUBLE PATENTING AND TERMINAL DISCLAIMER

The practice concerning double patenting and the effect of a terminal disclaimer on such a rejection is set out below. The notices of January 9, 1967, and February 14, 1968, relating to this subject are hereby superseded except with reference to the practice described involving different inventive entities.

Claims should be rejected on double patenting only in cases involving two or more applications and/or patents of the same inventive entity and not in situations involving commonly owned cases of different inventive entities. Commonly owned cases of different inventive entities are to be treated in the manner set out in MPEP 804.03.

If two or more cases are filed by a single inventive entity, and if the expiration dates of the patents, granted or to be granted, are the same, either because of a common issue date or by reason of the filing of one or more terminal disclaimers, two or more patents may properly be granted provided the claims of the different cases are not drawn to the same invention (*In re Knohl*, 155 USPQ 586; *In re Griswold*, 150 USPQ 804).

Claims that differ from each other (aside from minor differences in language, punctuation, etc.), whether or not the difference is obvious, are not considered to be drawn to the same invention. In cases where the difference is obvious, terminal disclaimers are effective to overcome rejections on double patenting. However, such terminal disclaimers should include a provision that the patent shall expire immediately if it ceases to be commonly owned with the other application or patent.

Where there is no such difference, the inventions are the same and a terminal disclaimer is ineffective.

EDWARD J. BRENNER,
Feb. 18, 1969. *Commissioner.*

[860 O.G. 661]

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(96) NON-FINAL SECOND ACTION REJECTION PRACTICE

Experience since September 1, 1966, indicates that the non-final second action rejection practice announced on a trial basis at 829 O.G. 1755 (M.P.E.P. Change Notice 10—1) has worked out satisfactorily for both the Office and the applicants. Effective immediately, that practice as restated below will be followed on a regular basis.

Second actions on the merits will not be made final where the examiner introduces a new ground of rejection not necessitated by amendment of the application by the applicant. Further, in carrying out this policy, a second action on the merits in any application will not be made final if it includes a rejection of any claim not amended by applicant where that rejection relies on newly cited art. Also, amendments complying with objections or requirements as to form are to be permitted after final action in accordance with Rule 116(a).

RICHARD A. WAHL,
Jan. 30, 1967. *Assistant Commissioner.*

[835 O.G. 715]

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(97) NEW FIRST ACTION PROCEDURE

Effective January 2, 1968, a new practice involving the use of a revised form for the first page of the first Office Action will be instituted. The use of this new form will introduce some new practices and procedures and will terminate the "Interview Practice Preliminary to Notice Under 35 U.S.C. 132" announced August 1, 1967, at 841 O.G. 1.

The heading of the revised form containing the address and application identification will have a completely revised format to facilitate future pre-action addressing by automatic typewriter.

Under the new procedure, the Examiner will signify on the revised form certain information including the period set for response, any attachments, and, in a "summary of action," the position taken on all claims.

The new procedure will also allow the Examiner, in the exercise of his professional judgment, to indicate that a discussion with applicant's representative may result in agreements whereby the application may be placed in condition for allowance and that the Examiner will telephone the representative within about two weeks. Under this practice the applicant's representative can be adequately prepared to conduct such a discussion. Any resulting amendment may be made either by the applicant's attorney or agent or by the Examiner in an Examiner's Amendment. It should be recognized that when extensive amendments are necessary it would be preferable if they were filed by the attorney or agent of record, thereby reducing the professional and clerical workload in the Patent Office and also providing the file wrapper with a better record, including applicant's arguments for allowability as required by Rule 111.

RICHARD A. WAHL,
Dec. 11, 1967. *Assistant Commissioner.*

[845 O.G. 1205]

(98) CONTINUATIONS—RES JUDICATA REJECTIONS

Some confusion exists in the interpretation of the established Office policy regarding the use of *res judicata* rejections. To clarify the Manual on this point the following changes are made—

The second paragraph of MPEP 201.07 is rewritten to read:

At any time before the patenting or abandonment of or termination of proceedings on his earlier application, an applicant may have recourse to filing a continuation in order to introduce into the case a new set of claims and to establish a right to further examination by the primary Examiner.

The last two sentences of MPEP 201.11 are deleted. MPEP 706.03(w) is rewritten to read:

A prior adjudication against the inventor on the same or similar claims constitutes a proper ground of rejection as *res judicata*. See *Ex parte Budde*, 150 USPQ 469; 828 O.G. 409. The rejection should be used only when the earlier decision was a decision of the Board of Appeals or any of the reviewing courts, and when the time for further court review has expired and no such review has been sought, or, if filed, the review action is terminated. The timely filing of a second application copending with an earlier application does not preclude the use of *res judicata* as a ground of rejection for the second application claims.

When making a rejection on *res judicata*, action should ordinarily be made also on the basis of prior art.

RICHARD A. WAHL,
Mar. 18, 1968. *Assistant Commissioner.*

[849 O.G. 277]

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(99) GUIDELINES FOR CONSIDERING DISCLOSURES OF UTILITY IN DRUG CASES

On December 5, 1967 the text of certain guidelines which the Patent Office proposed to adopt in the examination of applications for drugs, was published in the OFFICIAL GAZETTE (845 O.G. 1). A hearing was had on January 16, 1968, and all persons, who desired to, were invited to attend and to submit their views, objections, recommendations or suggestions. The following guidelines are being published after consideration of all the material and opinions, both written and oral, which were submitted in response to that invitation.

EDWARD J. BRENNER,
Mar. 19, 1968. *Commissioner of Patents.*

General

These guidelines are set down to provide uniform handling of applications disclosing drug or pharmaceutical utility. They are intended to guide patent examiners and patent applicants as to criteria for utility statements. They deal with fundamental questions and are subject to revision and amendment if future case law indicates this to be necessary.

The following two basic principles shall be followed in considering matters relating to the adequacy of disclosure of utility in drug cases:

(1) The same basic principles of patent law which apply in the field of chemical arts shall be applicable to drugs, and

(2) The Patent Office shall confine its examination of disclosure of utility to the application of patent law principles, recognizing that other agencies of the government have been assigned the responsibility of assuring conformance to the standards established by statute for the advertisement, use, sale or distribution of drugs.[1]

A drug is defined by 21 U.S.C. 321(g)

> The term "drug" means (A) articles recognized in the official United States Pharmacopeia, official Homeopathic Pharmacopeia of the United States, or official National Formulary, or any supplement to any of them; and (B) articles intended for use in the diagnosis, cure, mitigation, treatment, or prevention of disease in man or other animals; and (C) articles (other than food) intended to affect the structure or any function of the body of man or other animals; and (D) articles intended for use as a component of any articles specified in clause (A), (B), or (C); but does not include devices or their components, parts or accessories.

In addition, compositions adapted to be applied to or used by human beings, e.g., cosmetics, dentifrices, mouthwashes, etc., may be treated in the same manner as drugs subject to the conditions stated.

Any proof of a stated utility or safety required pursuant to these guidelines may be incorporated in the application as filed, or may be subsequently submitted by affidavit if and when required. The Patent Office, in reaching its own independent decisions on questions of utility and how to use under 35 U.S.C. 101 and 112, will continue to avail itself of assistance and information from the Secretary of Health, Education, and Welfare as authorized by 21 U.S.C. 372(b), when necessary.

In accordance with the basic principles set forth above, the following procedures shall be followed in examining patent applications in the drug field with regard to disclosures relating to utility.

35 U.S.C. 101

Utility must be definite and in currently available form,[2] not merely for further investigation or research but commercial availability is not necessary. Mere assertions such as "therapeutic agents,"[3] "for pharmaceutical purposes,"[4] "biological activity,"[5] "intermediates,"[6] and for making further unspecified preparations are regarded as insufficient.

If the asserted utility of a compound is believable on its face to persons skilled in the art in view of the contemporary knowledge in the art, then the burden is upon the examiner to give adequate support for rejections for lack of utility under this section.[7] On the other hand, incredible statements[8] or statements deemed unlikely to be correct by one skilled in the art[9] in view of the contemporary knowledge in the art will require adequate proof on the part of applicants for patents.

Proof of utility under this section may be established by clinical or *in vivo* or *in vitro* data, or combinations of these, which would be convincing to those skilled in the art.[10] More particularly, if the utility relied on is directed *solely* to the treatments of humans, evidence of utility, if required, must generally be clinical evidence.[11] Although animal tests may be adequate where the art would accept these as appropriately correlated with human utility.[12] If there is no assertion of human utility,[13] or if there is an assertion of animal utility,[14] operativeness for use on standard test animals is adequate for patent purposes.

Exceptions exist with respect to the general rule relating to the treatment of humans. For example, compositions whose properties are generally predictable from a knowledge of their components, such as laxatives, antacids and certain topical preparations, require little or no clinic proof.[15]

Although absolute safety is not necessary to meet the utility requirement under this section, a drug which is not sufficiently safe under the conditions of use for which it is said to be

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[1] *In re Krimmel*, 48 CCPA 1116, 292 F.2d 948, 130 USPQ 215; *In re Hartop et al.*, 50 CCPA 780, 311 F.2d 249, 135 USPQ 419.

[2] *Brenner* v. *Manson*, 383 U.S. 519, 148 USPQ 689.

[3] Cf. *In re Lorenz et al.* 49 CCPA 1227, 305 F.2d 875, 134 USPQ 312, cf. *Ex parte Brockmann et al.*, 127 USPQ 57.

[4] *In re Diedrich*, 50 CCPA 1355, 318 F.2d 946, 138 USPQ 128.

[5] *In re Kirk et al.*, 54 CCPA 1119, 153 USPQ 48; *Ex parte Lanham*, 135 USPQ 106.

[6] *In re Joly et al.*, 54 CCPA 1159, 153 USPQ 45; *In re Kirk et al.*, 54 CCPA 1119, 153 USPQ 48.

[7] *In re Gazave*, 54 CCPA 1524, 154 USPQ 92.

[8] *In re Citron*, 51 CCPA 852, 325 F.2d 248, 139 USPQ 516; *In re Oberweger*, 28 CCPA 749, 115 F.2d 826, 47 USPQ 455; *Ex parte Moore et al.*, 128 USPQ 8.

[9] *In re Ruskin*, 53 CCPA 872, 354 F.2d 395, 148 USPQ 221; *In re Pottier*, 54 CCPA 1293, 153 USPQ 407; *In re Novak et al.* 49 CCPA 1283, 306 F.2d 924, 134 USPQ 335. See also, *In re Irons*, 52 CCPA 938, 340 F.2d 974, 144 USPQ 351.

[10] *In re Irons*, 52 CCPA 938, 340 F.2d 924, 144 USPQ 351; *Ex parte Paschall*, 88 USPQ 131; *Ex parte Pennell et al.*, 99 USPQ 56; *Ex parte Ferguson*, 117 USPQ 229; *Ex parte Timmis*, 123 USPQ 581.

[11] *Ex parte Timmis*, 123 USPQ 581.

[12] *In re Hartop et al.*, 50 CCPA 780, 311 F.2d 249, 135 USPQ 419; *Ex parte Murphy*, 134 USPQ 134.

[13] Cf. *Blicke* v. *Treves*, 44 CCPA 753, 241 F.2d 718, 112 USPQ 472; *In re Krimmel*, 48 CCPA 1116, 292 F.2d 948, 130 USPQ 215; *In re Dodson*, 48 CCPA 1125, 292 F.2d 943, 130 USPQ 224; *In re Hitchings*, 52 CCPA 1141, 342 F. 2d 80, 144 USPQ 637.

[14] *In re Bergel et al.*, 48 CCPA 1102, 292 F.2d 955, 130 USPQ 206; *Ex parte Melvin*, 155 USPQ 47.

[15] *Ex parte Harrison et al.*, 129 USPQ 172; *Ex parte Lewin*, 140 USPQ 70.

effective will not satisfy the utility requirement.[18] Proof of safety shall be required only in those cases where adequate reasons can be advanced by the examiner for believing that the drug is unsafe, and shall be accepted if it establishes a reasonable probability of safety.

35 U.S.C. 112

A mere statement of utility for pharmacological or chemotherapeutic purposes may raise a question of compliance with Section 112, particularly ". . . as to enable any person skilled in the art to which it pertains . . . to use the same." If the statement of utility contains within it a connotation of how to use, and/or the art recognizes that standard modes of administration are contemplated, Section 112 is satisfied. [17] If the use disclosed is of such nature that the art is unaware of successful treatments with chemically analogous compounds, a more complete statement of how to use must be supplied than if such analogy were not present. [18] It is not necessary to specify the dosage or method of use if it is obvious to one skilled in the art that such information could be obtained without undue experimentation.[17]

With respect to the adequacy of disclosure that a claimed genus possesses an asserted utility representative examples together with a statement applicable to the genus as a whole will ordinarily be sufficient if it would be deemed likely by one skilled in the art, in view of contemporary knowledge in the art, that the claimed genus would possess the asserted utility.[19] Proof of utility will be required for other members of the claimed genus only in those cases where adequate reasons can be advanced by the examiner for believing that the genus as a whole does not possess the asserted utility. Conversely, a sufficient number of representative examples, if disclosed in the prior art will constitute a disclosure of the genus to which they belong.

In the case of mixtures including a drug as an ingredient, or mixtures which are drugs, or methods of treating a specific condition with a drug, whether old or new, a specific example should ordinarily be set forth, which should include the organism treated. In appropriate cases, such an example may be inferred from the disclosure taken as a whole and/or the knowledge in the art (e.g., gargle).

Where the claimed compounds are capable of several different utilities and one use is adequately described in accordance with these guidelines, additional utilities will be investigated for compliance with Sections 101 and 112 only if not believable on their face to those ordinary skill in the art in view of the contemporary knowledge of the art. Failure to meet these standards may result in a requirement to cancel such additional utilities.[20]

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[16] *In re Hartop et al.* 50 CCPA 780, 311 F.2d 249, 135 USPQ 419.

[17] Cf. *In re Johnson*, 48 CCPA 733, 282 F.2d 370, 127 USPQ 216; *In re Hitchings et al.*, 52 CCPA 1141, 342 F.2d 80, 144 USPQ 637.

[18] *In re Mourcu et al.*, 52 CCPA 1363, 345 F. 2d 595, 145 USPQ 452; *In re Schmidt et al.*, 54 CCPA 1577, 153 USPQ 640.

[19] *In re Oppenauer*, 31 CCPA 1248, 143 F.2d 974, 62 USPQ 297; *In re Cavallito et al.*, 48 CCPA 711, 282 F.2d 357, 127 USPQ 202; *In re Cavallito et al.*, 48 CCPA 720, 282 F.2d 363, 127 USPQ 206; *In re Schmidt*, 48 CCPA 1140, 293 F.2d 274, 130 USPQ 404; *In re Cavallito*, 49 CCPA 1335, 306 F.2d 505, 134 USPQ 370; *In re Surrey*, 54 CCPA 855, 370 F.2d 349, 151 USPQ 724; *In re Lund et al.*, 54 CCPA 1361, 153 USPQ 625.

[20] *Ex parte Lanham*, 121 USPQ 223; *Ex parte Moore et al.*, 128 USPQ 8; *In re Citron*, 51 CCPA 852, 325 F.2d 248, 139 USPQ 516; *In re Gottlieb et al.*, 51 CCPA 1114, 328 F.2d 1016, 140 USPQ 665.

[849 O.G. 567]

(100) APPLICATIONS TO BE TAKEN UP SPECIAL

Hereafter the existence of the following facts will place the application concerned in the category of special cases, i.e., those to be advanced out of regular order for examination.

Once a case is taken up for action by an Examiner according to its effective filing date, it should be treated as special by any Examiner, Art Unit or Group to which it may subsequently be transferred. Exemplary situations includes: (1) new cases transferred as the result of a telephone election, and (2) cases transferred as the result of a timely response to any official action.

RICHARD A. WAHL,
Feb. 29, 1968. *Assistant Commissioner.*

[850 O.G. 4]

(101) REJECTIONS NOT BASED ON PRIOR ART

The primary object of the examination of an application is to determine whether or not the claims define a patentable advance over the prior art. This consideration should not be relegated to a secondary position while undue emphasis is given to non-prior art or "technical" rejections. Effort in examining should be concentrated on truly essential matters, minimizing or eliminating effort on matters which may have played a part in the examination process in the past but which are not really critical. Where a major technical rejection is proper (e.g., lack of proper disclosure, undue breadth, utility, etc.) such rejection should be stated with a full development of the reasons rather than by a mere conclusion coupled with some stereotyped expression.

Generally speaking, the inclusion of (1) negative limitations and (2) alternative expressions, provided that the alternatively expressed elements are basically equivalents for the purpose of the invention, are permitted if no uncertainty or ambiguity with respect to the question of scope or breadth of the claim is presented.

The examiner has the responsibility to make sure the wording of the claims is sufficiently definite to *reasonably* determine the scope. It is applicant's responsibility to select proper wording of the claim, except to the extent that the selection of words makes the claims indefinite. Under no circumstances should a claim be rejected merely because the Examiner prefers a different choice of wording.

Rejections not based on prior art are explained in 706.03(a) to 706.03(y). IF THE ITALICIZED LANGUAGE IN THESE SECTIONS IS INCORPORATED IN THE REJECTION, THERE WILL BE LESS CHANCE OF A MISUNDERSTANDING AS TO THE GROUNDS OF REJECTION.

RICHARD A. WAHL,
July 23, 1968. *Assistant Commissioner.*

[853 O.G. 603]

(102) REVISED DESIGN PATENT PRACTICE

The following changes are being instituted in order to clarify the distinction between the ornamental design for an article being claimed in a design patent and its environment. These changes are to be followed in the examination of all design applications as of the date of this notice. It is suggested that applicants initiate compliance with these changes in all pending design applications.

The ornamental design which is being claimed must be shown in solid lines in the drawing. Dotted lines for the purpose of indicating unimportant or immaterial features of the designed article are no longer permitted. There are no portions of a design which are immaterial or unimportant. In re *Blum*, 852 O.G. 1045; 153 USPQ 177.

The title of the article being claimed in a design patent must correspond to the name of the article shown in solid lines in the drawing.

RICHARD A. WAHL,
Feb. 26, 1969. *Assistant Commissioner.*

[860 O.G. 999]

(103) "MERE FUNCTION OF MACHINE"—REJECTION

In view of the decision of the Court of Customs and Patent Appeals in *In re Tarczy-Hornoch* appearing at 158 USPQ 141, process or method claims will no longer be subject to a rejection by Patent Office examiners solely on the ground that they define the inherent function of a disclosed machine or apparatus. Accordingly, the subject matter of MPEP 706.03(r) is inapplicable and hereby cancelled.

RICHARD A. WAHL,
Feb. 10, 1969. *Assistant Commissioner.*

[861 O.G. 343]

(104) FINAL REJECTION—FIRST ACTION

The claims of a new application may be finally rejected in the first Office action in those situations where (1) the

new application is a continuing application of, or a substitute for, an earlier application, and (2) all claims of the new application (a) are drawn to the same invention claimed in the earlier application, and (b) would have been properly finally rejected on the art of record in the next Office action if they had been entered in the earlier application. A first action final rejection in a continuation-in-part application is not proper where any claim includes subject matter not present in the parent case.

RICHARD A. WAHL,
Mar. 20, 1969. *Assistant Commissioner.*

[861 O.G. 1011]

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(105) CLAIM INTERPRETATION

The notice of January 15, 1968, appearing in the OFFICIAL GAZETTE of February 13, 1968 (847 O.G. 331) and concerned with statements relating to the scope of the invention claimed in patent applications, is hereby rescinded.

RICHARD A. WAHL,
Sept. 12, 1969. *Assistant Commissioner.*

[867 O.G. 1]

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(106) EXAMINATION OF PATENT APPLICATIONS ON COMPUTER PROGRAMS

Notice of Rescission of Guidelines

Notice regarding the adoption by the Patent Office of guidelines for the examination of patent applications on computer programs was published in the Federal Register of October 22, 1968 (33 F.R. 15600), and in the OFFICIAL GAZETTE of the Patent Office of October 22, 1968 (855 O.G. 829).

In view of the decision by the U.S. Court of Customs and Patent Appeals in "In re Prater et al.," 162 USPQ 541, 866 O.G. 1034 (1969), the adopted guidelines are hereby rescinded, effective immediately. For the time being, adoption of new guidelines for the examination of patent applications is being deferred pending further judicial interpretation of the law on a case-by-case basis.

Consideration of "In re Prater et al." has brought into question the advisability of issuing guidelines for the examination of patent applications on computer programs. Parties who desire to present their views, recommendations, or suggestions concerning such guidelines are invited to do so, by letter addressed to the Commissioner of Patents, Washington, D.C. 20231. Those parties who recommend the issuance of such guidelines are invited to submit comments concerning the proposed language of the guidelines.

WILLIAM E. SCHUYLER, Jr.,
Commissioner of Patents.

Approved: October 3, 1969.
MYRON TRIBUS,
Assistant Secretary for Science and Technology.

[F.R. Doc. 6912194; Filed, Oct. 9, 1969, 8:48 a.m.]

Published 34 F.R. 15724, October 10, 1969

[868 O.G. 349]

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(107) CERTAIN CASES

Reopening After Decision, Board of Appeals

Effective with the date of this notice the Commissioner of Patents will, on a trial basis, entertain petitions under § 1.198 of Title 37, Code of Federal Regulations (Patent Office Rule 198), to reopen certain cases in which an applicant has sought review under 35 U.S.C. 141 or 145. This procedure is restricted to cases which have been decided by the Board of Appeals and which are amendable to settlement without the need for going forward with the court proceeding. Such petitions will ordinarily be granted only in the following categories of cases:

1. When the decision of the Board of Appeals asserts that the rejection of the claims is proper because the claims do not include a disclosed limitation or because they suffer from some other curable defect, and the decision reasonably is suggestive that claims including the limitation or devoid of the defect will be allowable;

2. When the decision of the Board of Appeals asserts that the rejection of the claims is proper because the record does not include evidence of a specified character, and is reasonably suggestive that if such evidence were presented, the appealed claims would be allowable, and it is demonstrated that such evidence presently exists and can be offered; or

3. When the decision of the Board of Appeals is based on a practice, rule, law, or judicial precedent which, since the Board's decision, has been rescinded, repealed, or overruled.

Any such petition must be accompanied by the proposed amendment, evidence, or argument said to justify allowance of the claims. The petition further must point out how the case falls within one of the preceding categories. Failure to do so or failure of the case to qualify as coming within one of the categories will usually constitute bases for denying the petition. In any event, no case will be reopened unless it is for the consideration of matters not already adjudicated, and sufficient cause has been shown.

Such petitions will not be ordinarily entertained after the filing of the Commissioner's brief in cases in which review has been sought under 35 U.S.C. 141, or after trial in a 35 U.S.C. 145 case.

In the case of an appeal under 35 U.S.C. 141, if the petition is granted, steps will be taken to request the court to remand the case to the Patent Office and if so remanded the proposed amendments, evidence, and arguments will be entered of record in the application file for consideration, and further action will be taken by the Board of Appeals in the first instance or by the Examiner as may be appropriate. In the case of civil action under 35 U.S.C. 145, steps will be taken for obtaining dismissal of the action without prejudice to consideration of the proposals.

WILLIAM E. SCHUYLER, Jr.,
Commissioner of Patents.

Approved: Oct. 16, 1969.
MYRON TRIBUS,
Assistant Secretary for Science and Technology.

[F.R. Doc. 69-12674; Filed Oct. 22, 1969; 8:48 a.m.]

Published in 34 F.R. 17210, Oct. 23, 1969

[868 O.G. 1058]

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(108) PROSECUTION AND DELIVERY OF AMENDMENTS

General

Many of the difficulties encountered in the prosecution of patent applications after final rejection may be alleviated if each applicant includes, at the time of filing or no later than the first response, claims varying from the broadest to which he believes he is entitled to the most detailed that he is willing to accept.

Prosecution After Final Rejection

To expedite the resolution of cases under final rejection, an amendment filed at any time after final rejection but before an appeal brief is filed, may be entered upon or after filing of an appeal provided the total effect of the amendment is to (1) remove issues for appeal, and/or (2) adopt Examiner suggestions. Of course, if the amendment necessitates a new search, raises the issue of new matter, presents additional claims without cancelling a corresponding number of finally rejected claims, or otherwise introduces new issues, it will not be entered. Examiners will continue to respond to all non-entered amendments after final rejection, and will indicate the status of each claim of record or proposed, including the designation of claims that would be entered on the filing of an appeal if filed in a separate paper. It should be noted that an amendment placing a case in condition for allowance will be enterable by the Examiner at any stage prior to forwarding the answer on appeal. Except where an amendment merely cancels claims and/or adopts Examiner suggestions, removes issues for appeal, or in some other way requires only a cursory review by the Examiner, compliance with the requirement of

a showing under Rule 116(b) will be expected of all amendments after final rejection.

In accordance with prior practice, in order to prevent abandonment, a timely filed amendment after final rejection that reaches the Examiner near the end or after the expiration of the period for response, may be entered in part if this can be done to make the case allowable (e.g., a second amendment after final rejection filed on the last day of the response period, where no appeal has been filed and the amendment cancels all rejected claims and proposes to add claims, at least one of which is unpatentable, entry would be approved to the extent of cancelling the rejected claims and entering only the patentable claims).

Only one attorney-initiated personal interview will be permitted after final rejection. However, the Examiner may initiate an interview anytime he believes it would expedite the prosecution of the application.

Hand Delivery of Papers

For purposes of convenience in those cases where the attorney and the Examiner agree that a proposed amendment discussed during a *personal* interview would place the application in condition for allowance, the amendment may be left with the Examiner to become an official paper in the file without routing through the mail room, provided no additional fees are required. Where the case is under final rejection, if changes in the proposed amendment are necessary and these changes are not practical to be made by Examiner's Amendment, the attorney or a local associate will be permitted to hand deliver a corrected amendment to the Examiner, provided no additional fees are required and further that the amendment is submitted to the Examiner by the end of the next working day following the interview and within the period for response.

The Examiner who accepts these amendments will write "entry approved" in the left-hand margin of the first page of the amendment, date and initial the amendment, and then have it date stamped with the Group Stamp. For applications under final rejection acceptance of a hand delivered amendment will require the initials of a Primary Examiner.

The privilege of personal delivery of papers by attorneys to the Examining Groups is extended to requests for extensions of time in addition to amendments of the type referred to above.

RICHARD A. WAHL,
Nov. 10, 1969. *Assistant Commissioner.*

[869 O.G. 345]

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(109) PETITION TO REVIVE PRACTICE

Effective immediately, a decision on a petition to revive an abandoned application will be based solely on whether a satisfactory showing has been made that the delay was unavoidable (35 U.S.C. 133). A petition to revive will not be considered unless the petition fee and a proposed response to the last Office action have been received (Rule 137).

The granting of a petition to revive does not serve in any way as a determination that the proposed response to the Office action is completely responsive. Revived applications will be forwarded to the examiner to determine the completeness of the proposed response. Such applications must be taken up *Special*. If the examiner determines that the response is complete, he should promptly take the case up for action. If the proposed response is not a complete response to the last Office action, the examiner should write a letter to the applicant informing him of the specific defects in his response and set a one-month time limit for applicant to complete his response. If the applicant does not complete his response within the set one-month limit, the application is again abandoned.

RICHARD A. WAHL,
Dec. 11, 1969. *Assistant Commissioner.*

[869 O.G. 1362]

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(110) PETITION TO REVIVE PRACTICE—CLARIFICATION

In clarification of the notice of Dec. 11, 1969 (869 O.G. 1362), the practice set forth in the second paragraph thereof is limited to proposed "responses" *before* final rejection. While a response to a non-final action may be either an argument or an amendment under Rule 111, a response to a final action "must include cancellation of, or appeal from the rejection of, each claim so rejected" under Rule 113.

Accordingly, in any case where a final rejection had been made, the proposed response required for consideration of a petition to revive must be either an appeal or an amendment that cancels all the rejected claims or otherwise prima facie places the application in condition for allowance.

In those situations where abandonment occurred because of the failure to file an appeal brief, the proposed response, required for consideration of a petition to revive, must include a brief accompanied by the proper fee.

RICHARD A. WAHL,
Feb. 20, 1970. *Assistant Commissioner.*

[873 O.G. 1]

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(111) MAIL DELAYS AND PETITIONS TO REVIVE

Since applications that become abandoned unintentionally present burdens to both the Patent Office and the applicant or his representatives, a simplified procedure has been devised to alleviate these burdens when the abandonment results from a delay in the mails. This procedure provides for an automatic petition to revive or petition to accept the delayed payment of issue fee.

It is suggested that when a communication, complying with the circumstances enumerated below, is mailed to the Patent Office more than three calendar days prior to the due date, a conditional petition be attached to the communication. If the communication is received in the Patent Office after the due date and the application becomes abandoned, the conditional petition will become effective, subject to the following requirements. The petition must include (1) an authorization to charge a deposit account for any required fees, including the petition fee (35 U.S.C. 41(a) 7), and (2) an oath or declaration signed by the person mailing the communication and also signed by the applicant or his registered representative stating that the communication and petition were either placed in the United States mail as first class or air mail, or placed in the mail outside the United States as air mail. Since mail handled in this manner may reasonably be expected to reach the Patent Office within three days of posting, any mail delays beyond such time will be considered to constitute unavoidable delay and sufficient cause to grant a petition to revive (35 U.S.C. 133) or a petition to accept delayed payment of an issue fee (35 U.S.C. 151).

The circumstances under which this procedure may be used are those where the communication, if timely filed, (1) would be a proper and complete response to an action or request by the Patent Office, and (2) would stop a period for response from continuing to run. Accordingly, this procedure would be appropriate for:

1. A response to a non-final Office action.
2. A response to a final Office action in the form of an amendment that cancels all rejected claims or otherwise prima facie places the application in condition for allowance.
3. A notice of appeal and requisite fee.
4. An appeal brief, in triplicate, and requisite fee.
5. A base issue fee.
6. A balance of issue fee.

Examples of which this procedure would not be appropriate and will not apply include:

1. Application papers.
2. A response to a final Office action other than that indicated in categories 2 and 3, above.
3. Extensions of time.
4. Petitions for delayed payment of either the issue fee or balance of issue fee.
5. Amendments under Rule 312.
6. Priority documents.

Normal petition practices are not affected in those situations where this procedure is either not elected or appropriate.

A suggested format for the conditional petition is shown below:

Applicant(s) ---------- ☐ Petition to revive
Serial No. ---------- ☐ Petition to accept delayed payment of issue fee
Date Filed ----------
For ----------

I hereby certify that the attached communication is being deposited in

☐ the United States mail as first class or air mail
☐ the mail outside the United States as air mail

in an envelope addressed to: Commissioner of Patents, Washington, D.C. 20231, on ----------, which date is more than three (3) calendar days prior to the due date from ----------, by ----------
(Location) (Name of Individual)

In the event that such communication is not timely filed in the United States Patent Office, it is requested that this paper be treated as a petition and that the:

☐ delay in prosecution be held unavoidable—35 U.S.C.133.
☐ delayed payment of the fee be accepted—35 U.S.C. 151.

The petition fee required by 35 U.S.C. 41(a) 7 is authorized to be charged to Deposit Account No. ---------- in the name of ----------.

The undersigned declare further that all statements made herein are true, based upon the best available information; and further, that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

Date ---------- ----------
(Signature of applicant or signature and registration number of Registered Representative)
And
Date ---------- ----------
(Signature of person mailing, if other than the above)

April 13, 1973. WILLIAM FELDMAN,
Deputy Assistant Commissioner for Patents.

[910 O.G. 402]

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(112) ENVIRONMENTAL QUALITY

In signing the National Environmental Policy Act on the first day of this decade, President Nixon declared, "The 1970's absolutely must be the years when America pays its debt to the past by reclaiming the purity of its air, its waters and our living environment." This landmark legislation declares that it is the continuing policy of the Federal Government to use all practicable means and measures to foster and promote the general welfare, create and maintain conditions under which man and nature can exist in productive harmony, and fulfill the social, economic, and other requirements of present and future generations of Americans. The Act further directs that, to the fullest extent possible, the policies, regulations, and public laws of the United States shall be interpreted and administered in accordance with the policies set forth in this Act.

In accordance with the desires of the President and this mandate of the Congress, the Patent Office will accord "special" status to all patent applications for inventions which materially enhance the quality of the environment of mankind by contributing to the restoration or maintenance of the basic life-sustaining natural elements—air, water, and soil. In order that the Patent Office may implement this procedure, we request that all applicants desiring to participate in this program request that their applications be accorded "special" status. Such requests should be written, should identify the applications by serial number and filing date, and should be accompanied by affidavits or declarations under Rule 102 explaining how their inventions contribute to the restoration or maintenance of one of these life-sustaining elements.

WILLIAM E. SCHUYLER, Jr.,
Jan. 29, 1970. *Commissioner of Patents.*

[871 O.G. 673]

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(113) TIMELY PRESENTATION OF AFFIDAVITS OF DECLARATIONS UNDER RULES 131 AND 132

All affidavits or declarations under Rule 131 or 132 must be timely presented in order to be admitted.

Affidavits and declarations submitted prior to a final rejection will be considered timely.

An affidavit or declaration presented with a first response after final rejection for the purpose of overcoming a new ground of rejection or requirement made in the final rejection will be entered and considered without a showing under Rule 116(b).

No other affidavit or declaration, under Rule 131 or 132, presented after a final rejection, will be considered unless a satisfactory showing is made under Rule 116(b) or 195.

All admitted affidavits or declarations will be acknowledged and commented upon by the Examiner in his next succeeding action.

RICHARD A. WAHL,
July 9, 1970. *Assistant Commissioner of Patents.*

[877 O.G. 243]

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(114) ABBREVIATED FIRST ACTIONS OF THE MERITS

Starting on or about February 1, 1971, and continuing for a trial period of up to twelve months, a newly developed form (PO–1142) will be used for first actions on the merits of patent applications involving claims subject to rejection and/or objection on statutory or other legal grounds.

The form is designed to furnish a clear, full, and complete first action including the reasons for rejection and/or objection together with such information and references as may be useful in judging the propriety of continuing the prosecution, all in accordance with the statute (35 U.S.C. 132); and it is intended to abridge the action with condensed language using essential words and phrases in abbreviated form, in order to expedite the prosecution and reduce the pendency time of applications awaiting examination. Where found necessary in exceptional cases, a regular action without the form will be used.

For abbreviation purposes, references referred to on the form will be designated by capital letters and identified on revised reference list PO–892, and their correlation as applied to the claims will be indicated by symbols illustrated and explained on the bottom of the form. Sections 100–103, and 112 of the patent statute are reproduced on the back of the form.

Summary sheet POL–326 will continue in use with all first actions, and has been revised to identify different parts of the sheet as "Part I" and "Part II." Form PO–1142 will be distinguished as "Part III," and if a second copy of the form is necessary and is used to complete the action it will be marked for distinction as "Part IIIa" (a regular typed page if annexed to an action with the form will be designated as "Part IV"). All parts of the action after Part I (Parts II, III, and IV) will each have numbered paragraphs starting with the numeral 1, and communications relating thereto may be properly identified by the number on the particular part (for example, paragraph 2 on Part III may be identified as paragraph III–2).

As noted, Form PO–1142 will be used only for first actions on the merits concerned with claims subject to rejection and/or objection on statutory or other legal grounds. It will not be used for any subsequent action nor a first action made final as in a continuing application.

Second actions on the merits will be final according to prevailing practice, and any reference referred to in these or subsequent actions will be identified by name or otherwise in conventional manner, not by capital letters as used on Form PO–1142. For this reason, use of conventional reference identification in response to all Office actions will be helpful.

Only one carbon copy of the action will be furnished in accordance with the Notice of October 21, 1970, entitled "Office Actions" and appearing in 880 O.G. 740.

All other Office policies, practices, and procedures remain in effect.

RICHARD A. WAHL,
Jan. 5, 1971. *Assistant Commissioner.*

[883 O.G. 2]

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(115) ABBREVIATED FIRST ACTION PROGRAM

The Abbreviated First Action Program using Form PO–1142 announced in the OFFICIAL GAZETTE of February 2, 1971 (883 O.G. 2) has been reviewed in the light of comments received from examiners, attorneys, and other members of the public, pursuant to the notice of November 10, 1971 (893 O.G. 1). As a result of this review the program will be continued and the form modified to incorporate some of the suggested improvements. The space for the explanation of the rejection will be expanded. In addition, the instructions to the examiners will be supplemented to reinforce the original stress on the importance of legibility, clarity and completeness in setting forth the examiner's position, and desirability of including suggestions that would render the case allowable.

RICHARD A. WAHL,
Mar. 17, 1972. *Assistant Commissioner.*

[897 O.G. 762]

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(116) AFTER FINAL REJECTION PRACTICE

[37 CFR Part 1]

Notice of Proposed Rule Making

Notice is hereby given that pursuant to the authority contained in section 6 of the Act of July 19, 1952 (66 Stat. 793; 35 U.S.C. 6), the Patent Office proposes to amend Title 37 of the Code of Federal Regulations by revising §§ 1.116, 1.191, 1.192, and 1.193, and by adding § 1.130.

All persons interested in presenting their views and objections and recommendations in connection with the proposed changes are invited to do so on or before March 23, 1971, on which day a hearing will be held at 2 p.m., e.s.t., in Room 8C06, Building 2, 2011 Jefferson Davis Highway, Arlington, Va. All persons wishing to be heard orally are requested to notify the Commissioner of Patents of their intended appearance. Any written comments or suggestions may be inspected by any person upon written request a reasonable time after the closing date for submitting comments.

The proposed changes, if adopted, will provide a basis for a revised procedure for treating amendments filed after a final rejection. A proposed additional section is added to incorporate the existing practice relative to affidavits.

The proposed procedure will provide that all timely filed first amendments after final rejection be entered as a matter of right, subject to the limitation that additional claims will not be entered beyond the number that would result in the total number of claims under prosecution equalling the number of claims finally rejected. Only those second and subsequent amendments which cancel claims will be entered as a matter of right. The entry and treatment of any other amendments filed at this stage will be entirely within the discretion of the examiner.

A distinction will be made between first amendments after final rejection filed within 2 months from the date of the final rejection and those filed after that period.

A first amendment after final rejection filed within 2 months of the final rejection will receive a full and complete advisory action as soon as possible after its receipt in the Patent Office. Under these circumstances, the revised procedure would permit the filing of an appeal within the period for response to the final rejection or within 1 month from the date of the advisory action, whichever is later. However, if an appeal had been filed before the mailing of the advisory action, the appeal brief would not be due until 2 months after the date of the advisory action.

Amendments filed later than 2 months after the date of the final rejection in nonappeared cases may be answered at the examiner's discretion, but no additional time will be allowed for appeal. However, if an appeal is filed in these cases, a full and complete advisory action will be rendered and the time for filing the brief will be extended to expire 2 months from the date of the advisory action.

After jurisdiction of an application transfers to the Board of Appeals, no amendments will be considered for entry except those restricted to cancellation of claims or copying claims for purposes of interference.

If new issues are presented in the claims as amended or presented after final rejection, they will be rejected in the advisory action on the ground of being drawn to new issues. These rejections will be reviewable by the Board of Appeals as "adverse decisions of examiners" (35 U.S.C. 7).

The current practice of normally making the second action on the merits final and setting of a 3-month period for response will continue. However, the practice of granting an automatic 1-month extension of time if an amendment is filed (notices of Aug. 7, 1967; 841 O.G. 1411 and of Sept. 26, 1968; 855 O.G. 1109) will be terminated, and extensions of time at this stage of the prosecution will not be encouraged. Further, any extension of time granted after a final rejection will not affect the 2-month period and the privilege of an advisory action.

The present policy concerning consideration of affidavits, declarations, and exhibits will remain unchanged.

Holding of interviews after final rejection will be at the primary examiner's discretion.

This procedure will also allow the examiner to prepare examiner's answers which simply refer to the final rejection or the advisory action in most instances.

The sections, if amended as proposed, would read as follows:

§ 1.116 *Amendments after final action.*

* * * * *

(b) A first amendment presented after final rejection will be entered and considered, but the total number of claims under prosecution may not exceed the total number finally rejected. Entry of second and subsequent amendments after final rejection will normally be limited to only those which cancel claims.

(c) A first amendment filed within 2 months after the date of the final rejection, or after appeal, will receive a full and complete advisory action. If not previously filed, an appeal may be filed in such cases within the period for response to the final rejection or within 1 month from the date of the advisory action, whichever is later. In those cases where an appeal was filed before the date of the advisory action, the appeal brief is due 2 months after the date of the advisory action.

(d) After jurisdiction of an appealed case passes to the Board of Appeals no amendments may normally be made (see § 1.191(d)). After decision on appeal, amendments can only be made as provided in § 1.198, or to carry into effect a recommendation under § 1.196.

(e) Amendments after final rejection shall not introduce new issues into the prosecution.

§ 1.130 *Affidavits, declarations, or exhibits after final rejection.*

Affidavits, declarations, or exhibits submitted with a first reply after final rejection for the purpose of overcoming a new ground of rejection or requirement made in the final rejection, shall be admitted and considered. No other affidavit, declaration, or exhibit presented after final rejection will be admitted and considered without a showing of good and sufficient reasons why they were not earlier presented.

§ 1.191 *Appeal to Board of Appeals.*

(a) Every applicant for a patent or for reissue of a patent, any of the claims of which have been twice rejected, or who has been given a final rejection (§ 1.113) may, upon the payment of the fee required by law, appeal from the decision of the primary examiner to the Board of Appeals within the time allowed for response. (See § 1.116(c).)

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(d) The jurisdiction of an appealed case is retained by the primary examiner until the time for filing a reply to the examiner's answer (§ 1.193(b)) has expired, at which time the Board of Appeals will take jurisdiction of the same.

§ 1.192 *Appellant's brief.*

(a) The appellant shall, within 2 months from the date of the appeal, or within the time allowed for response to the

action appealed from, or within the time allowed in an advisory action (§ 1.116(b)), whichever is later, file a brief, accompanied by the requisite fee. Said brief shall include all of the authorities and arguments on which he will rely to maintain his appeal, including a concise explanation of the invention which should refer to the drawing by reference characters, and a copy of the claims involved, at the same time indicating if he desires an oral hearing. Two extra copies of the brief are required if an oral hearing is requested. Upon a showing of sufficient cause the time for filing the brief may be extended to a date not later than 2 months after the original expiration date. Any longer or further extensions must be sought from the Commissioner. All requests for extensions must be filed prior to the expiration of the period sought to be extended.

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§ 1.193 *Examiner's answer.*

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(b) The appellant may file a reply brief directed only to such new points of argument as may be raised in the examiner's answer, within 1 month from the date of such answer. However, if the examiner's answer states a new ground of rejection appellant may file a reply thereto within 2 months from the date of such answer; such reply may include any amendment or material appropriate to the new ground.

WILLIAM E. SCHUYLER, JR.,
Commissioner of Patents.

Approved: January 22, 1971.

RICHARD O. SIMPSON,
Acting Assistant Secretary for Science and Technology.

[FR Doc. 71-1167 Filed 1-27-71; 8:47 a.m.]

Pub. in 36 F.R. 1356-57, Jan. 28, 1971

[883 O.G. 880]

(Pending—No Final Action Taken)

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(117) DEPOSIT OF MICROORGANISMS

Some inventions which are the subject of patent applications depend on the use of microorganisms which must be described in the specification in accordance with 35 U.S.C. 112. No problem exists when the microorganisms used are known and readily available to the public. When the invention depends on the use of a microorganism which is not so known and readily available, applicants must take additional steps to comply with the requirements of Section 112.

In re Argoudelis et al., 168 USPQ 99 (CCPA, 1970), accepted a procedure for meeting the requirements of 35 U.S.C. 112. Accordingly, the Patent Office will accept the following as complying with the requirements of Section 112 for an adequate disclosure of the microorganism required to carry out the invention:

(1) The applicant, no later than the effective U.S. filing date of the application, has made a deposit of a culture of the microorganism in a depository affording permanence of the deposit and ready accessibility thereto by the public if a patent is granted, under conditions which assure (*a*) that access to the culture will be available during pendency of the patent application to one determined by the Commissioner to be entitled thereto under Rule 14 of the Rules of Practice in Patent Cases and 35 U.S.C. 122, and (*b*) that all restrictions on the availability to the public of the culture so deposited will be irrevocably removed upon the granting of the patent;

(2) Such deposit is referred to in the body of the specification as filed and is identified by deposit number, name and address of the depository, and the taxonomic description to the extent available is included in the specification; and

(3) The applicant or his assigns has provided assurance of permanent availability of the culture to the public through a depository meeting the requirements of (1). Such assurance may be in the form of an averment under oath or by declaration by the applicant to this effect.

A copy of the applicant's contract with the depository may be required by the Examiner to be made of record as evidence of making the culture available under the conditions stated above.

RICHARD A. WAHL,
Apr. 29, 1971. *Assistant Commissioner.*

[886 O.G. 638]

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(118) EVIDENCE OF PATENTABILITY OR PRIORITY

[37 CFR Part 1]

Proposed Special Statement in Affidavit or Declaration When Relying Upon Facts, Data, Test Results or Other Evidence

Notice is hereby given that, pursuant to the authority contained in section 6 of the Act of July 19, 1952 (66 Stat. 793; 35 U.S.C. 6) the Patent Office proposes to amend Title 37, Code of Federal Regulations, by adding a new § 1.69.

All persons are invited to present their views, objections, recommendations, or suggestions in connection with the proposed new section, to the Commissioner of Patents, Washington, D.C. 20221, on or before June 27, 1972, on which date a hearing will be held at 9 a.m. in Room 8C06, Building 2, Crystal Plaza, 2011 Jefferson Davis Highway, Arlington, Va. 22202. All persons wishing to be heard orally at the hearing are requested to notify the Commissioner of Patents of their intended appearance. Any written comments or suggestions may be inspected by any person upon written request a reasonable time after the closing date for submitting comments.

New § 1.69 seeks to guard against the omission from facts, data, test results, or other evidence presented in connection with patentability or priority of invention, of known evidence which is inconsistent with that presented or which would convey a different impression. The purpose is to insure presentation to the Patent Office of the evidence needed to make an informed decision on patentability or priority of invention. The section thus requires a verified statement that no such inconsistent evidence is known to the person making the statement, if such is the fact.

The text of the proposed new § 1.69 is as follows:

§ 1.69 *Special statement in affidavit or declaration when relying upon facts, data, test results, or other evidence.*

(a) An affidavit or declaration filed during the prosecution of an application presenting evidence urged as bearing on patentability or priority of invention will be considered only if the applicant or other person making the affidavit or declaration states therein that no evidence is known to him which is inconsistent with that relied on in the affidavit or declaration, or which would tend to give an impression different from that conveyed by the affidavit or declaration.

(b) If, during the prosecution, the applicant, to establish patentability, relies on representations as to facts, data, or test results set forth in the specification, such representations will be considered for that purpose only if applicant files an affidavit or declaration attesting as to the truth of the representations and asserting that no facts, data, or test results are known to him which are inconsistent with those set forth in the specification, or which would tend to give an impression different from that conveyed by the specification.

Dated: April 28, 1972.

ROBERT GOTTSCHALK,
Commissioner of Patents.

Approved: May 1, 1972.

JAMES H. WAKELIN, JR.,
Assistant Secretary for Science and Technology.

[FR Doc. 72-6925 Filed 5-5-72; 8:49 a.m.]

Published in 37 F.R. 9225, May 6, 1972

[899 O.G. 2]

(Pending—No Final Action Taken)

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(119) STATUS OF RULE 69 PROPOSAL

This notice is in response to numerous inquiries received by the Patent Office relative to the status of the proposal, published at 37 F.R. 9225 on May 6, 1972 and at 899 O.G. 2

on June 6, 1972, to add a new section 1.69 to Title 37, Code of Federal Regulations.

All of the many written and oral comments received have been analyzed and are currently being studied. The analysis indicates that comments in favor of and against the principle of the rule were about evenly divided. Many comments expressed reservations concerning the language used. The "inconsistency" and "tend to give an impression" clauses drew the most criticism. The first clause was viewed as being too absolute, forcing the affiant or declarant to abdicate reasonable judgment concerning validity of seemingly inconsistent or maverick test results. The second clause was viewed as being too subjective or vague which would result in second guessing later. The additional burden on both applicants and examiners was also advanced as reason to change the proposed language.

In summary, the proposal is still under study with the view of developing a satisfactory way to accomplish the intent of the proposed rule.

S. WM. COCHRAN,
Solicitor.

Nov. 22, 1972.

[905 O.G. 448]

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(120) STATEMENTS FILED UNDER ATOMIC ENERGY ACT AND NASA ACT

Attention is called to the provisions of section 152 of the Atomic Energy Act of 1954 (42 U.S.C. 2182) and section 305(c) of the National Aeronautics and Space Act of 1958 (42 U.S.C. 2457). These statutes provide that the title to inventions useful in the production or utilization of special nuclear material or atomic energy, made or conceived in the course of or under any contract, subcontract, or arrangement entered into with or for the benefit of the Atomic Energy Commission, and any invention made in the performance of any work under any contract of the National Aeronautics and Space Administration, shall be vested in the United States. They also provide that no patent may be granted for any invention useful in the production or utilization of special nuclear material or atomic energy, or which in the opinion of the Commissioner has significant utility in the conduct of aeronautical or space activities, unless the applicant files with his application or within 30 days after request therefor by the Commissioner, a statement under oath setting forth (*a*) the full facts in regard to the making or conception of the invention, and (*b*) the situation with regard to the contractual relationships involving the Commission or the Administration. Careful attention should be given the exact wording of the requirements of whichever of these sections is pertinent in order to assure that all of the requirements are met. Since the duty of requiring the statements is placed by law on the Commissioner of Patents, it is incumbent on the Commissioner to determine whether the statements are timely filed and sufficient in substance to comply. Since these laws do not provide for any extension of the 30-day period or for reviving an application which has become abandoned for failure to file a proper statement, it is important that such statements be timely filed and that they do so comply in order to avoid loss of valuable patent rights.

The "full facts" involved in the conception and making of an invention should include those which are unique to that invention. The use of form paragraphs or printed forms which set forth only broad generalized statements of fact is not ordinarily regarded as meeting the requirements of these statutes.

This Office has construed the word "applicant" in both of these statutes to mean the inventor or joint inventors in person. Accordingly, in the ordinary situation, the statements must be signed by the inventor or joint inventors, if available. This construction is consistent with the fact that no other person could normally be more knowledgeable of the "full facts concerning the circumstances under which such invention was made," (42 U.S.C. 2457) or, "full facts surrounding the making or conception of the invention or discovery" (42 U.S.C. 2182).

In instances where an applicant does not have first-hand knowledge whether the invention involved work under any contract, subcontract, or arrangement with or for the benefit of the Atomic Energy Commission, or had any relationship to any work under any contract of the National Aeronautics and Space Administration, and includes in his statement information of this nature derived from others, his statement should identify the source of his information. Alternatively, the statement by the applicant could be accompanied by a supplemental declaration or oath, as to the contractual matters, by the assignee or other person, e.g., an employee thereof, who has the requisite knowledge.

Where an applicant is deceased or incompetent, or where it is shown to the satisfaction of this Office that he refuses to furnish a statement or cannot be reached after diligent efforts, declarations or statements under oath setting forth the information required by the statutes may be accepted from an officer or employee of the assignee who has sufficient knowledge of the facts. The offer of such substitute statements should be based on the actual unavailability of or refusal by the applicant, rather than mere inconvenience. Where it is shown that one of joint inventors is deceased or unavailable, a statement by all of the other joint inventor(s) may be accepted.

WILLIAM FELDMAN,
Deputy Assistant Commissioner for Patents.

Aug. 13, 1973.

[914 O.G. 2]

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(121) APPLICATIONS RELATED TO ENERGY

In his Message of April 18, 1973, to The Congress "Concerning Energy Resources," the President stated that "with 6 percent of the world's population, we consume almost a third of all the energy used in the world." The President noted that our energy demands "now outstrip our available supplies, and at our present rate of growth, our energy needs a dozen years from now will be nearly double what they were in 1970." The President's Message of April 18 called for the development of a more comprehensive, integrated national energy policy and announced specific steps to carry out the policy. On June 29, 1973, the President announced a series of additional actions to deal with the Nation's energy problem. Among those actions were major efforts in energy research and development and in energy conservation.

In order to enhance and further the goals and actions announced by the President, the Patent Office will, on request, accord "special" status to all patent applications for inventions which materially contribute to (1) the discovery or development of energy resources, and (2) the more efficient utilization and conservation of energy resources. Examples of inventions in category (1) would be those relating to further developments in fossil fuels (natural gas, coal, and petroleum), nuclear energy, solar energy, etc. Category (2) would include inventions relating to the reduction of energy consumption in combustion systems, industrial equipment, household appliances, etc. In order that the Patent Office may implement this procedure, we request that all applicants desiring to participate in this program request that their applications be accorded "special" status. Such requests should be written, should identify the application by serial number and filing date, and should be accompanied by affidavits or declarations under rule 102 by the applicant or his attorney or agent explaining how the invention materially contributes to category (1) or (2) set forth above.

Requests should be addressed to the Commissioner of Patents, Washington, D.C. 20231.

RENE D. TEGTMEYER,
Acting Commissioner of Patents.

Date: Oct. 26, 1973.

Approved:

BETSY ANCKER-JOHNSON, Ph.D.,
Assistant Secretary for Science and Technology.

[916 O.G. 2]

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(122) PROTESTS TO THE GRANT OF A PATENT

[37 CFR Part 1]

Notice of Proposed Rule Making

Notice is hereby given that, pursuant to the authority contained in section 6 of the Act of July 19, 1952 (66 Stat. 793; 35 U.S.C. 6), as amended Oct. 5, 1971, Public Law 92–132, 85 Stat. 364, the Patent Office proposes to amend title 37 of the Code of Federal Regulations by revising §§ 1.11(b) and 1.291.

All persons are invited to present their views, objections, recommendations, or suggestions in connection with the proposed changes to the Commissioner of Patents, Washington, D.C., 20231, on or before Oct. 31, 1973, on which date a hearing will be held at 9:30 a.m. in Room 11C24, Building 3, 2021 Jefferson Davis Highway, Arlington, Va. All persons wishing to be heard orally at the hearing are requested to notify the Commissioner of Patents of their intended appearance. Any written comments or suggestions may be inspected by any person, upon written request, a reasonable time after the closing date for submitting comments.

The underlying purpose of the proposed rule change is to assure that the best art and information relevant to the patentability of an application for patent are brought to the Patent Office's attention. Under present procedures, ex parte examination of patent applications is conducted as thoroughly and in as effective a manner as possible. However, it is noted that a significant number of patents involved in litigation are held invalid because prior art or other information having a bearing on patentability, which was not known to the examiner during the prosecution of the case, is brought to the court's attention.

The proposed rule change is designed to elicit this additional prior art or other information. An applicant would be given the opportunity to open his application to public inspection prior to issuance of a patent. The public would then have the opportunity to bring to the attention of the Office information which bears on the question of patentability of the pending patent application. Presumably, interested and affected members of the public may be aware of relevant prior art which the Office did not find, or might know of other information unavailable to the Office, bearing on the question of patentability. If in the opinion of the Commissioner, consideration of such new evidence would lead to a more complete appraisal of patentability, the Commissioner may reopen prosecution of the application.

It is believed that there are several benefits which this proposed procedure would bring about. First, applicants would benefit from a more meaningful presumption of validity where a patent is issued after appropriate consideration of evidence submitted by the public under this procedure. Second, potential competitors of the applicant would benefit from having the opportunity to call to the attention of the Office information that could either prevent a patent from issuing or lead to claims of more restricted scope. And by use of the proposed procedure such determinations would be helpful in avoiding the more expensive conventional procedure following the issue of the patent, of litigating the questions of validity and scope of such patent on the same grounds at a later date. Finally, the public would benefit from the resultant strengthening of the presumption of validity of patents granted on applications which underwent this procedure and the strengthening of the patent system for its intended purposes.

Paragraph (b) of § 1.11 is proposed to be amended to allow the Patent Office to open the file of a pending patent application to the public in accordance with a written authorization from the applicant as specified in the proposed § 1.291(b).

It is proposed to amend present § 1.291 by incorporating a new paragraph (a) which provides that protests filed by the public to the grant of a patent, including the identity of the protesting party, be made of record in the patent application concerned, if such application is identified by the protesting party. The proposed rule change would also afford the examiner an opportunity to ask the protesting party for submission of additional evidence bearing on the question of patentability. Any such evidence received would be forwarded to the applicant. Under § 1.291(a) the protesting party would not be permitted to inspect the application file.

In paragraphs (b), (c) and (d) of § 1.291, a new procedure is proposed whereby an applicant, whose application for patent has been indicated as being allowable by the examiner (Form PO–327), may within thirty days of such indication authorize the Office to open his application to public inspection. The application would be available for inspection for a period of three months from the time a notice to that effect appeared in the OFFICIAL GAZETTE. The notice would be in the form of a publication of data necessary to identify the application in question and would include a representative illustration of the invention, the most comprehensive claim, and a listing of references cited by the Patent Office. The applicant would be charged a fee of $25.00 to defray the printcost of this notice in the OFFICIAL GAZETTE.

On the basis of such notice, any person would be permitted access to the application in question and could obtain copies of any papers contained therein (see proposed amendment to § 1.11(b)).

If any person, after inspection of an application, is of the opinion that the relevant prior art of record is not complete, he can notify the Commissioner and the applicant in writing, of any grounds, including additional publications or patents, which he believes have a bearing on the patentability of any claim contained in such application, together with an explanation of the relevance of such publications or patents to the allowed claims. He would, in addition or alternatively, have the opportunity to comment on the manner in which the prior art of record was applied and raise any other matter which could affect the patentability of the claimed invention.

All evidence and comments received in this fashion, including the identity of the protesting party, would be made of record in the application after the time period for protest had elapsed. The protesting party would thereafter be privy to all further proceedings in the Patent Office insofar as they relate to the evidence he submitted. If, in the opinion of the Commissioner, such evidence constituted a prima facie showing of non-patentability of the subject matter as claimed, or unenforceability of a patent if granted, prosecution of the application would be reopened.

As a result of any reexamination of the application, the applicant would be permitted to present amended or new claims which would be subject to a determination of patentability by a primary examiner. The protesting party who made evidence of non-patentability available to the Patent Office would be informed of any action taken by the Office and given the opportunity to comment thereon.

In cases involving evidence of prior public use or sale of the invention, the procedure outlined in present § 1.292 would be utilized to provide the person presenting such evidence with an opportunity to be heard.

An adverse determination to the patentability of any claim may, of course, be appealed by the applicant to the Board of Appeals under § 1.191.

Applications considered under the above procedure and ultimately allowed after a decision by the Board of Appeals would not be reconsidered under this proposed procedure. If, after the three-month period from the date of publication, no evidence was received or if in the opinion of the Commissioner the evidence submitted does not bar the granting of a patent on grounds of patentability or enforceability, a notice of allowance (Form POL–85) would be transmitted in due course. This determination would be final and not subject to petition by the protesting party.

The text of the proposed amended sections is as follows:

§ 1.11 *Files open to the public.*

* * * * *

(b) Applications in which the Office has accepted a request filed under § 1.139 or received an authorization under § 1.291 (b), are open to inspection by the general public, and copies may be furnished upon paying the fee therefor.

§ 1.291 *Protests to the grant of a patent.*

(a) The patent statutes do not provide for protests to the grant of a patent as a matter of right on the part of the public. Where protests to the grant of a patent are filed with the Office, and the protesting party identifies the application, the protest papers will be referred to the examiner having charge of the application. In such case, the protest papers, including the identity of the protesting party, will be placed in the application file and a copy will be forwarded to the applicant. The examiner may request submission of further evidence from the protesting party, and any further evidence adduced will be made of record and also forwarded to the applicant. However, the protesting party will not be permitted to inspect the application file unless the Office has received an authorization under paragraph (b) of this section or § 1.14 (a). Where the protesting party cannot identify the application, the protest will be acknowledged and referred to the examiner having charge of the subject matter involved for his information.

(b) Applications may be voluntarily opened to public inspection. Within thirty days from the mailing date of a notice of allowability from the examiner, an applicant may waive his right to have his pending application for patent kept in con-

fidence (§ 1.14). Such waiver may be accomplished by filing in the Office a written authorization, signed by the applicant and assignee of record or by the attorney or agent of record, to open the complete application to inspection and protest by the general public to the granting thereof, together with a fee of $25.00.

(c) Upon receipt of an authorization under paragraph (b) of this section, the Office shall publish suitable notice of such fact in the OFFICIAL GAZETTE together with a representative illustration of the invention, the most comprehensive claim, and a listing of references cited by the Patent Office. At anytime up to three months thereafter, any person may protest the grant of a patent by filing with the Commissioner and serving the applicant with publications, patents or any other information which might have a bearing on the patentability of any claims contained in the patent application or on the enforceability of any patent issuing on said application; said protest must include a memorandum explaining the relevance of the submitted evidence. All protest papers filed, together with the identity of the real party in interest originating the protest shall be made of record in the application after the time period for protest has elapsed. Examination of the application shall be reopened if, in the opinion of the Commissioner, it appear that any claim thereof may not be patentable or any patent granted on said application would be unenforceable in view of such evidence. In the event that examination is reopened, the protesting party shall be apprised of all further proceedings in the Patent Office insofar as they relate to or are concerned with the evidence submitted by the protesting party, and accorded the opportunity to comment thereon. All further papers received from the protestor will be made of record. If the examination of the application is not reopened, the protesting party shall be so apprised. A decision by the Commissioner not to reopen an application for examination after the close of the protest period, shall be final and not subject to petition by the protesting party. In cases involving evidence of public use or sale of the invention more than one year before the filing of the application, the procedure outlined in § 1.292 shall be followed.

(d) The transmittal of a formal notice of allowance shall be held in abeyance until the patentability of the claimed invention has been determined in light of such evidence. If no protest to patentability is submitted to the Commissioner within the time specified, or if he determines that no further examination is necessary, a notice of allowance shall be transmitted to the applicant, his attorney or his agent in due course. A copy of said notice of allowance will also be forwarded to the protesting party.

ROBERT GOTTSCHALK,
Date: May 15, 1973. *Commissioner of Patents.*

Approved:
DR. BETSY ANCKER-JOHNSON,
Assistant Secretary for Science and Technology.

(Pub. FR 1469, June 4, 1973)

[911 O.G. 760]

(Pending—No Final Action Taken)

AMENDMENTS

(123) AMENDMENTS—BASIS IN ORIGINAL DISCLOSURE MANUAL OF PATENT EXAMINING PROCEDURE

When an amendment is filed in response to an objection or rejection based on incomplete disclosure, a study of the entire application is often necessary to determine whether or not "new matter" is involved. In the interest of expeditious prosecution, Examiners are directed, whenever such an objection or rejection is made, to call attention to Rule 111(c). Applicant should specifically point out the support for any amendments made to the disclosure.

RICHARD A. WAHL,
Aug. 13, 1965. *Assistant Commissioner.*

[818 O.G. 4]

(124) EXAMINER'S AMENDMENT PRACTICE

The present practice in making Examiner's Amendments when passing an application to issue is modified to permit the amendment or cancellation of claims where these have been authorized by applicant (or his representative) in a telephone or personal interview. The Examiner's Amendment should include a statement indicating that the changes were authorized, the date and type (personal or telephone) of interview, and with whom it was had.

The current policy prohibiting changes in the drawing and/or description of an application is maintained with the exceptions noted in MPEP Section 1302.04.

The new procedure resulted from an employee's suggestion.

RICHARD A. WAHL,
May 11, 1966. *Assistant Commissioner.*

[827 O.G. 2]

(125) BRACKETS AND RULE 121—AMENDMENT OF CLAIMS

In view of the number of inquiries requesting an interpretation of the word "brackets" appearing in amended Rule 121 concerned with the amendment of claims, it is thought that clarification is desirable.

The term brackets [ ] as set forth in the amendment to Rule 121 and first announced in 843 O.G. 373 does not encompass and is to be distinguished from parentheses ( ). Therefore, any amendment using parentheses to indicate cancelled matter in a claim rewritten under Rule 121(b) may be held non-responsive in accordance with Rule 121(c).

RICHARD A. WAHL,
Jan. 15, 1968. *Assistant Commissioner.*

[847 O.G. 331]

INTERVIEWS

(126) INTERVIEW PRACTICE

To assist in early and equitable conclusion of examination of applications, the use of interviews in person or by telephone is encouraged, subject to the following guidelines.

Interviews with Examiners, whether in person or by telephone, shall be governed in general by the provisions of Rule 133. A request for an interview, whether made orally or in writing, before the first Office action is untimely and will not be acknowledged if written, or granted if oral; Rule 133(a).

If upon examination or re-examination, It is found that *minor* changes could be made to place the application in condition for allowance, the attorney or pro se inventor should be so notified by telephone. This practice should be followed whether or not there has been a specific request for interview or for such notification.

Where an interview is arranged, both the Examiner and the attorney should be familiar with the issues in the application before starting the conference. It is the responsibility of both parties to the interview to see that it is not extended beyond a reasonable time, usually not longer than thirty minutes. The Primary Examiner personally responsible for the final disposition of the application should be notified of the results of the interview at its conclusion.

Interviews in person or by telephone are to be encouraged after the first Office action on the merits. In addition to interviews initiated by applicant, the Examiner may initiate interviews where he believes it would be productive. This practice may result in the filing of a first response that will so effectively advance the prosecution to permit disposing of the case in a bare minimum number of actions. The telephone procedure set forth in part 4 of Optimum Examining Procedure Memorandum #3, 801 O.G. 267, *requiring* a call by the Examiner, if requested by applicant, before taking final action has been found not satisfactory and will no longer be followed.

An interview may be granted after final rejection; however, except in rare instances, only one such interview should be granted.

An interview should not be requested or approved, except in very unusual circumstances, after filing of a Brief on

appeal or after an application has been passed to issue by the Primary Examiner.

Interviews are permissible any working day of the week except on overtime Saturdays.

RICHARD A. WAHL,
Acting Superintendent,
Sept. 16, 1964. *Patent Examining Corps.*

[807 O.G. 307]

(127) TELEPHONE INTERVIEWS

Present Office policy places great emphasis on telephone interviews initiated by the Examiner. For this reason, it is no longer deemed necessary for an attorney to request a telephone interview as specified in the old Optimum Examining Procedure memos. Examiners are no longer required to note or acknowledge requests for telephone calls or state reasons why such proposed telephone interviews would not be considered effective to advance prosecution. However, it is still desirable for an attorney to call the Examiner if the attorney feels the call will be beneficial to advance prosecution of the case.

RICHARD A. WAHL,
Oct. 11, 1967. *Assistant Commissioner.*

[846 O.G. 1022]

JOINDER

(128) TELEPHONE PRACTICE IN RESTRICTION AND ELECTION OF SPECIES SITUATIONS

If an examiner determines that a requirement for restriction should be made in an application, he should formulate a draft of such restriction requirement including, if any, the grounds of rejection of linking or generic claims. Thereupon, he should telephone the attorney of record and ask if he will make an oral election, with or without traverse if desired, after the attorney has had time to consider the restriction requirement. The examiner should arrange for a second telephone call within a reasonable time, generally within three working days. If the attorney objects to making an oral election, or fails to respond, the usual restriction letter will be mailed, and this letter should NOT contain any reference to the unsuccessful telephone call.

When an oral election is made, the examiner will then proceed to incorporate into his letter a formal restriction requirement including the date of the election, the attorney's name, and a complete record of the telephone interview, followed by a complete action on the elected claims including linking or generic claims if present.

If on examination the examiner finds the elected claims to be allowable and no traverse was made, the letter should be written on POL–37 (Examiner's Amendment) and should include cancellation of the non-elected claims, a statement that the prosecution is closed and that a notice of allowance will be sent in due course. Correction of formal matters in the above-noted situation which cannot be handled by a telephone call and thus requires action by the applicant should be handled under the *Ex parte Quayle* practice, using POL–90; these would usually be drawing corrections or the like requiring payment of charges.

Should the elected claims be found allowable in the first action, and an oral traverse was noted, the examiner should include in his action a statement under Section 821.01, M.P.E.P., making the restriction final and giving applicant thirty days (Rule 136) to either cancel the non-elected claims or take other appropriate action. Failure to take action will be treated as an authorization to cancel the non-elected claims by an Examiner's Amendment and pass the case to issue. Prosecution of this application is otherwise closed.

In either situation (traverse or no traverse), caution should be exercised to determine if any of the allowed claims are linking or generic before cancelling the non-elected claims.

Where the respective inventions are located in different groups the requirement for restriction should be made only after consultation with and approval by all groups involved. If an oral election would cause the application to be examined in another group, the initiating group should transfer the application with a signed memorandum of the restriction requirement and a record of the interview. The receiving group will incorporate the substance of this memorandum in its official letter as indicated above. Differences as to restriction should be settled by the existing chain of command, e.g. Supervisory Primary Examiner or Manager.

This practice is limited to use by examiners who have at least negotiation authority. Other examiners must have the prior approval of their Supervisory Primary Examiner.

RICHARD A. WAHL,
Jan. 27, 1966. *Assistant Commissioner.*

[824 O.G. 408]

(129) RESTRICTION AND ELECTION PRACTICE

Effective April 1, the practice and procedure in cases involving a requirement for restriction or election is changed as indicated below.

Under the new practice, whenever a written or telephoned requirement is made in a case which includes claims considered by the Examiner to be generic or linking, it will not include any rejection of these claims. The Examiner should specify which claims are considered to be generic or linking.

Although no art will be cited where linking claims are present, a search should be made and art cited where generic claims are involved. In the latter situation the generic claims will not be rejected but merely indicated as not allowable in view of the cited art (Rule 146).

A 30-day shortened statutory period will be set for response to a written requirement. Such action will not be an "action on the merits" for the purpose of the second action final program. In either situation, with linking or generic claims, a response, to be complete, need only include a proper election.

The only exception to the above practice will be in the case where the Examiner gives a complete action on the merits of all the claims in addition to the requirement for restriction.

The use of the telephone to make an initial requirement will be continued and is encouraged.

RICHARD A. WAHL,
Feb. 28, 1967. *Assistant Commissioner.*

[837 O.G. 668]

(130) ELECTION OF SPECIES

Effective June 1, 1967, the following practice will be instituted on a trial basis for 6 months.

In cases involving Markush claims or generic claims of the formula type including such a number and diversity of members as to require an unduly extensive and burdensome search for the embodiments encompassed, the Examiner may require election of species without a search on the merits (Rule 105).

The election requirement may be made in the same manner as that described in the Change Notice 12–6 of Feb. 28, 1967, with a 30 day shortened statutory period which will not be an "action on the merits" for the purpose of second action final program. If a telephone requirement, made by the Examiner, is complied with the first written action will be a complete action on the merits and the usual 3 months shortened statutory period will be set.

As pointed out in Change Notice 12–6, the use of the telephone to make an initial requirement will be continued and is encouraged.

EDWARD J. BRENNER,
May 4, 1967. *Commissioner.*

[838 O.G. 1223]

(131) ELECTION OF SPECIES

The practice set forth in the Notice of May 4, 1967 (838 O.G. 1223) is made permanent and modified to permit a requirement for election of species in cases involving multiple species whether or not generic claims are present or searched prior to the election. Also, if no claims to species are presented but the generic claim is of the burdensome type referred to in the Notice, a requirement for election of species prior to search of the generic claims should be made.

As in the original Notice, if an election is made pursuant to a telephone requirement, the action should include a full and complete action on the elected species as well as on any generic claims that might be present. If generic claims are found allowable, no change in the practice currently in effect is contemplated.

RICHARD A. WAHL,
Aug. 19, 1968. *Assistant Commissioner.*

[854 O.G. 287]

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(132) NON-ELECTED CLAIMS

In the interest of expediting the prosecution of pending applications, the following change in procedure is made. When preparing a final action in an application where there has been a traversal of a requirement for restriction or election of species, the Examiner should indicate in his action that a complete response must include cancellation of the non-elected claims or other appropriate action (Rule 144).

In the above situations where a response to the final action has otherwise placed the application in condition for allowance, the failure to take appropriate action with respect to the non-elected claims will be construed as authorization to cancel these claims by Examiner's Amendment and pass the case to issue after the expiration of the statutory period.

RICHARD A. WAHL,
May 24, 1968. *Assistant Commissioner.*

[851 O.G. 893]

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(133) RESTRICTION BETWEEN INVENTIONS

Combination claims (other than genus claims linking species claims), whether allowable, allowed, or not, will no longer automatically be permitted to serve as a basis for joining claimed inventions which otherwise would be properly the subject of a restriction requirement. In other words, applicant will be required to elect one of the claimed inventions which are the subject of a proper restriction requirement. Combination claims, formerly considered linking claims should be grouped as a separate invention. Rejoinder of the divided inventions, should any combination claim be allowed, however, also will no longer automatically be permitted. The statutory criteria for distinctness will be satisfied if the subcombinations and/or combinations involved are shown to be separately classified, or to have acquired a separate status in the art, or to involve different fields of search.

RICHARD A. WAHL,
June 20, 1968. *Assistant Commissioner.*

[852 O.G. 509]

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(134) RESTRICTION PRACTICE

[37 CFR Part 1]

Notice of Proposed Rule Making

Notice is hereby given that, pursuant to the authority contained in section 6 of the Act of July 19, 1952 (66 Stat. 793; 35 U.S.C. 6), as amended October 5, 1971, Public Law 92–132, 85 Stat. 364, the Patent Office proposes to amend Title 37 of the Code of Federal Regulations by revising §§ 1.141, 1.142, 1.144, 1.145, and 1.146.

All persons are invited to present their views, objections, recommendations or suggestions in connection with the proposed changes to the Commissioner of Patents, Washington, D.C. 20231 on or before December 12, 1972, on which date a hearing will be held at 9:30 a.m. in Room 11 C 24, Building 3, 2021 Jefferson Davis Highway, Arlington, Va. All persons wishing to be heard orally at the hearing are requested to notify the Commissioner of Patents of their intended appearance. Any written comments or suggestions may be inspected by any person, upon written request, a reasonable time after the closing date for submitting comments.

The proposed changes have three main purposes, (1) to clarify when a requirement for restriction may properly be made by an examiner, (2) to remove the limitation of five species if there is an allowable generic claim in the case, and (3) to provide a basis in the rules for requiring restriction to a single invention when two or more patentably different inventions are claimed in a single Markush-type claim. See "Ex parte Markush," 1925 C.D. 126 (Comm'r. Pat. 1924).

The expression "patentably different" emphasizes the importance of requiring restriction between two or more inventions only where there are unobvious differences between those inventions and separate patents can properly be granted to each invention. Otherwise due to the double patenting prohibition of 35 U.S.C. 121, multiple patents would be granted on a single invention. The proposed changes make it clear that a requirement for restriction is proper only when two or more patentably different inventions are claimed in one application.

The practice under present §§ 1.141 and 1.146 of limiting an application to five species, even though a generic claim has been allowed, has caused some problems since 1953 when the present language of section 121 of the patent statute became effective. Section 121 prohibits the use of a patent as a reference in a subsequent divisional application filed as the result of a requirement for restriction in the application on which such a patent is based. Present §§ 1.141 and 1.146 indicate that an application may be limited to five species even though an allowable generic claim appears therein. If an application is so limited to five species, the other species can be specifically protected only if refiled in a divisional application. Such applications may be filed even though the species are not patentably different from each other. Since the first patent cannot be used as a reference against the second application, limiting the number of species in the first patent would result in a second patent issuing on species which are not patentably different from the species in the first patent. The proposed changes would avoid this problem by removing from the rules the language limiting the claims in one application to five species.

The Markush-type claim practice which allows enumeration in a claim of a plurality of alternatively usable substances or members, has been sanctioned to permit the inclusion of such members in a claim when a generic term covering them is not available. Over the years, this form of claim has been used, for example, in claiming compounds having a large variety of substituent groups, and as a result, Markush-type claims are presented which are each directed to a plurality of independent and distinct inventions.

More than one invention is present in a Markush-type claim if the alternatively usable members of the Markush group are so unrelated and diverse that a prior art reference which shows one of the members and otherwise anticipates the claim could not ordinarily be used to reject under 35 U.S.C. 103 a claim reciting another of the members. In such circumstances, the claim is considered to be an improper Markush-type claim and not a generic claim. Such a claim imposes an undue burden on the Patent Office, particularly with respect to the search which would have to be made for proper examination.

The proposed changes expressly sanctioned the withdrawal of improper Markush-type claims. It should be noted that the "withdrawal" of such improper Markush-type claims would provide the applicant with the benefits of the double patenting prohibition of 35 U.S.C. 121. This benefit would not be available if such improper Markush-type claims were rejected.

The proposed changes will permit examiners to expedite prosecution and make more meaningful searches to determine whether the disclosed and claimed inventions are novel and patentable.

The text of the proposed revised rules is as follows:

§ 1.141 ***Different inventions in one application.***

An application claiming two or more independent and distinct, patentably different inventions may be required to be restricted to one of the inventions. Inventions are patentably different when one is not obvious in view of the other, and they may properly appear in separate patents.

§ 1.142 ***Requirement for restriction between inventions.***

(a) If two or more independent and distinct, patentably different inventions are claimed in a single application and the examiner deems that restriction is appropriate, he may require the applicant to elect for prosecution in the application a single invention, to which his claims shall be restricted. Such a requirement may be made at any time before final action in the case, at the discretion of the examiner.

(b) In an application containing a claim which enumerates alternatively usable substances or members which are so unrelated that the claim is, in fact, directed to independent and distinct, patentably different inventions, the examiner may require the applicant to elect the invention to which his claims shall be restricted. After election by applicant, such an improper claim by enumeration may be withdrawn by the examiner from further examination because more than one invention is being claimed (35 U.S.C. 121).

(c) Claims not restricted to the elected invention, if not canceled, are nevertheless withdrawn from further consideration by the examiner by the election, subject, however, to reinstatement in the event the requirement for restriction is withdrawn or overruled pursuant to a petition under § 1.144.

§ 1.144 ***Petition from requirement for restriction.***

Within 2 months after the examiner's adverse reply to a request for reconsideration of a requirement for restriction, the applicant may petition the Commissioner to review the requirement. A petition will not be considered if reconsideration of the requirement was not requested. (See § 1.181.)

§ 1.145 ***Subsequent presentation of claims for different invention.***

If, after an examiner's action on an application, the applicant presents a claim or claims therein directed to a patentably different invention, distinct from and independent of the invention previously claimed, the examiner may require the applicant to restrict the claims to the invention previously claimed if the amendment is entered, subject to reconsideration and review as provided in §§ 1.143 and 1.144.

§ 1.146 ***Election of species.***

In an application containing a generic claim and claims directed to a plurality of independent and distinct, patentably different species embraced thereby, the examiner may require the applicant to elect that species of his invention to which his claims shall be restricted if no generic claim is finally held allowable. If a generic claim is later found allowable, the application may also contain claims to species in addition to the one elected, provided that such additional species claims are either written to be dependent from a generic claim (§ 1.75 (c)) or to otherwise include all the limitations of the generic claim.

RICHARD A. WAHL,
Acting Commissioner of Patents.

Approved: October 13, 1972.

RICHARD O. SIMPSON,
Acting Assistant Secretary for Science and Technology.

[FR Doc. 72-17925 Filed 10-19-72; 8:47 am]

Pub. in 37 F.R. 22625, Oct. 20, 1972

[905 O.G. 254]

(Pending—No Final Action Taken)

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(135) CHANGE OF INVENTORS

Where a person is added or removed as an inventor during the prosecution of an application before the Patent Office, problems may occur upon claiming U.S. priority in a foreign filed case. One such problem results from the apparent conflict between the inventor(s) named in the foreign application and the inventor(s) shown on the priority papers obtained from the U.S. Patent Office. Another problem may occur where there is no conflict between the inventors in the foreign application as filed and the priority papers but a change of inventors has been made in the U.S. application and a similar change is to be made in the foreign application.

In order to overcome the possibility of these problems arising in the future, Examiners should acknowledge any addition of inventors made in accordance with the practice under Rule 45 including the following statement in the next communication to the applicant or his attorney:

"In view of the papers filed _____, it has been found that this application, as filed, through error and without any deceptive intention, failed to include _____ as an actual joint inventor and accordingly, this application has been corrected to include him in accordance with Rule 45."

A similar statement, appropriately modified, should be made in the case where an inventor is removed from those included in the application as filed.

RICHARD A. WAHL,
June 10, 1968. *Assistant Commissioner.*

[852 O.G. 509]

TIME FOR RESPONSE

(136) EXTENSION OF TIME

It is ordinarily desirable that notice of the action taken by the Patent Office on requests for extension of time be communicated to the persons making the requests as soon as is reasonably possible. In order to improve Patent Office service to patent and trademark applicants in this regard, the following procedure is being instituted effective immediately. If a request for extension of time is filed in duplicate and accompanied by a stamped return-addressed envelope, the Office will indicate the action taken on the duplicate and return it promptly in the envelope. Utilization of this procedure is optional on the part of applicant.

EDWARD J. BRENNER,
Aug. 3, 1966. *Commissioner of Patents.*

[829 O.G. 1307]

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(137) EXTENSIONS OF TIME

Effective immediately, a new liberal policy for interpretation and application of Rule 136(b) will apply with respect to first requests for a one-month extension of time for reply to Office actions where a shortened statutory period for response has been set. Any request under Rule 136(b) for extension of time must state a reason in support thereof; under the above policy the application of the rule will entail only a limited evaluation of the stated reason.

This liberality will not apply to (1) any requests for more than a one-month extension, and (2) second and subsequent requests for extension of time.

In order to provide prompt notification of the action taken on extension requests, the request may be filed in duplicate, accompanied by a stamped return-addressed envelope (including a ZIP code), as announced in the OFFICIAL GAZETTE of, August 3, 1966, 829 O.G. 1307).

It is expected that requests for extension of time will continue to be made only when a need exists and will not become a standard operating procedure. Routine use of this practice may necessitate abandoning the new policy and a return to a less liberal interpretation of Rule 136(b).

RICHARD A. WAHL,
Jan. 26, 1967. *Assistant Commissioner.*

[835 O.G. 716]

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(138) FINAL REJECTION—TIME FOR RESPONSE

Effective Sept. 1, 1967, the filing of a timely response to a final rejection having a shortened statutory period for response will operate to extend the period for appeal or filing of a continuing case an additional month, but in no case to exceed six months from the date of the final action.

An object of this practice is to obviate the necessity for appeal or filing a continuing case merely to gain time to consider the Examiner's position in reply to an amendment timely filed after final rejection.

Present practice relating to the treatment of amendments after final rejection will continue to apply and failure to file a response during the three-month period will, as heretofore, result in abandonment of the application. In any case where this one-month extension applies and an amendment is officially received during this additional month, the amendment will not be entered or responded to unless it *prima facie* places the application in condition for allowance (e.g. cancels all rejected claims, fully complies with all Examiner suggestions, requirements, etc.).

Also, during this additional month no applicant- or attorney-initiated interview will be permitted.

EDWARD J. BRENNER,
Aug. 7, 1967. *Commissioner.*

[841 O.G. 1411]

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(139) FINAL REJECTION—TIME FOR RESPONSE

In clarification of the Notice of August 7, 1967, published in the OFFICIAL GAZETTE of August 29, 1967 (841 O.G. 1411), the filing of a timely response after a final rejection is construed as including a request for a one month extension of the shortened statutory period.

If the response is complete but fails to place the application in condition for allowance, the request will be granted. The entry of any further amendments filed during the additional month shall be restricted to those which *prima facie* place the application in condition for allowance.

RICHARD A. WAHL,
Sept. 26, 1968. *Assistant Commissioner.*

[855 O.G. 1109]

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(140) OFFICE ACTIONS—TIMELY RESPONSE

The Patent Office has been receiving an excessively large volume of petitions to revive based primarily on the late filing of amendments and other responses to official actions. Many of these petitions indicate that the late filing was due to unusual mail delays; however, the records generally show that the filing was only two or three days late.

In order to alleviate, for applicants and the Office, the problems and expenditures of time and effort occasioned by abandonments and petitions to revive, it is suggested that responses to official action be mailed to the Patent Office at least one, and preferably two, week(s) prior to the expiration of the period within which a response is required. This suggestion is made in the interest of improving efficiency, thereby providing better service to the public.

WILLIAM FELDMAN,
Aug. 25, 1972. *Deputy Assistant Commissioner for Patent Examining.*

[902 O.G. 1172]

APPEALS

(141) APPEAL BRIEFS

It appears that many appeal briefs are being filed which omit reference to the drawing in describing the appellant's invention. As a reminder that the Board of Appeals is aided in its consideration if such a reference appears, attention is directed to the following language in the first sentence of Rule 192(a):

". . . including a concise explanation of the invention which should refer to the drawing by reference characters . . ."

EDWIN L. REYNOLDS,
Aug. 3, 1965. *First Assistant Commissioner.*

[817 O.G. 1241]

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(142) APPEAL BRIEFS

While Rule 192(a) requires two extra copies of appeal briefs only if an oral hearing is requested, such copies are of substantial assistance to the Board when appeals are submitted on brief and it is desirable that they be supplied in such cases also. All claims reproduced in appeal briefs should be double spaced.

EDWIN L. REYNOLDS,
Jan. 24, 1966. *First Assistant Commissioner.*

[823 O.G. 411]

(143) PRACTICE RE: WITHDRAWAL OF FINAL REJECTION BY THE EXAMINER AFTER NOTICE OF APPEAL TO THE BOARD OF APPEALS

Where Notice of Appeal to the Board of Appeals has been filed and the Examiner withdraws the final rejection for allowance or further rejection, applicants are reminded that this results in automatic removal of the appeal from the records of the Board of Appeals in that application.

Accordingly, a proper response to a subsequent final rejection requires the filing of a new Notice of Appeal [without fee] and if this appeal is carried forward, the appropriate fee on filing a brief in support of the second appeal is required.

EDWIN L. REYNOLDS,
Mar. 29, 1967. *First Assistant Commissioner.*

[837 O.G. 667]

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(144) RULE 192—FILING OF APPEAL BRIEF

Attention is directed to the fact that the seasonable filing of an appeal brief is determined by Rule 192, irrespective of whether the applicant or his attorney has received the appeal acknowledgment with its *reminder* of the brief's due date.

The above should be reflected in any docketing system for filing appeal briefs.

EDWIN L. REYNOLDS,
Aug. 4, 1967. *First Assistant Commissioner.*

[841 O.G. 1412]

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(145) ORAL HEARINGS UNDER RULE 194

Effective September 1, 1968, for a trial period of six months, new procedures will be initiated which will permit Primary Examiners to present an oral argument before the Board of Appeals in appeals where the applicant has been granted an oral hearing.

After the attorney or agent representing the appellant has made his presentation, the Examiner will be allowed fifteen minutes to reply as well as to present a statement which clearly sets forth his position with respect to the issues and rejections of record. Appellant may utilize any allotted time not used in the initial presentation for rebuttal.

RICHARD A. WAHL,
July 26, 1968. *Assistant Commissioner.*
Concur:
EDWIN L. REYNOLDS,
First Assistant Commissioner.

[855 O.G. 827]

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(146) APPEAL HEARINGS

The practice of permitting oral arguments by Primary Examiners in appeals, announced for a trial period in the OFFICIAL GAZETTE of Oct. 22, 1968 (855 O.G. 827), is hereby made permanent.

RICHARD A. WAHL,
Mar. 27, 1969. *Assistant Commissioner.*
Concur:
E. L. REYNOLDS,
First Assistant Commissioner.

[861 O.G. 1011]

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(147) ABANDONMENT OF APPLICATIONS BEFORE BOARD OF APPEALS

There have been recent instances of the Board of Appeals rendering a decision in an application which had already been refiled as a streamlined continuation.

To avoid recurrence of this situation, applicants should promptly inform the Clerk of the Board in writing as soon as they have positively decided to refile or to abandon an application containing an appeal awaiting a decision. Failure

to exercise appropriate diligence in this matter may result in the Board's refusing an otherwise proper request to vacate their decision.

EDWIN L. REYNOLDS,
First Assistant Commissioner.

[857 O.G. 1005 (Dec. 24, 1968)]

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(148) REPLY BRIEFS

Applicants should clearly and specifically indicate in their reply briefs the new points of argument "raised in the examiner's answer" to which said reply briefs are directed. Rule 193(b) does not permit general rebuttal of each statement made in the examiner's answer; Consequently a reply brief which is not restricted to answering "new points" may be refused consideration in toto.

EDWIN L. REYNOLDS,
Apr. 15, 1969. *First Assistant Commissioner.*

[862 O.G. 343]

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(149) APPEALS—CONFIDENTIAL MEMORANDA

The practice of presenting confidential memoranda to the Board of Appeals is hereby terminated. All correspondence with the Board of Appeals, whether by the Examiner or the applicant will be on the record. No unpublished decisions which are unavailable to the general public by reason of 35 U.S.C. 122 will be cited by the Examiner or the applicant except that either the Examiner or the applicant has the right to cite an unpublished decision in an application having common ownership with the application on appeal.

WILLIAM E. SCHUYLER, JR.,
July 28, 1970. *Commissioner of Patents.*

[877 O.G. 733]

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(150) TITLE 37—PATENTS, TRADEMARKS, AND COPYRIGHTS

CHAPTER 1—PATENT OFFICE, DEPARTMENT OF COMMERCE

PART 1—RULES OF PRACTICES IN PATENT CASES

Extensions of Time To File Appeal Briefs

After the effective date of this rule change, the examining group clerical staffs will perform all processing and record-keeping relating to appeals to the Board of Appeals up to and including the time when an examiner's supplemental answer to a reply brief is mailed or the time for filing a reply brief has expired. At this time jurisdiction of an appealed application passes from the examiner to the Board of Appeals.

Therefore, all inquiries and papers concerning an application under appeal should be directed to the appropriate examining group until the application is in condition for consideration by the Board of Appeals.

Papers filed in an appealed application under the jurisdiction of the Board of Appeals, such as requests for reconsideration or confirmation of an oral hearing date, should include an expression in the heading such as "Before the Board of Appeals" so that it may be properly routed by the mailroom.

The examining group appeal clerks are authorized to grant, upon the first request therefor, 1-month extensions of time to file the brief or reply brief. Any further extensions or any initial request for an extension of more than 1 month may be granted by the group directors.

After the effective date, there will be no Patent Office acknowledgements of notices of appeals or briefs.

There was published in the December 31, 1970, issue of the Federal Register (35 F.R. 20010) a proposal to revise § 1.192 of Title 37, Code of Federal Regulations, to broaden the authority to grant extensions of time for filing appeal briefs.

Interested persons were given the opportunity to participate in the rule making through submission of comments in writing, and at an oral hearing held on February 19, 1971.

In consideration of the foregoing and pursuant to the authority contained in section 6 of the Act of July 19, 1952 (66 Stat. 793; 35 U.S.C. 6), § 1.192 of Title 37 of the Code of Federal Regulations is hereby revised as follows:

§ 1.192 *Appellant's brief.*

(a) The appellant shall, within 2 months from the date of the appeal, or within the time allowed for response to the action appealed from, if such time is later, file a brief in triplicate, accompanied by the requisite fee, of the authorities and arguments on which he will rely to maintain his appeal, including a concise explanation of the invention which should refer to the drawing by reference characters, and a copy of the claims involved, at the same time indicating if he desires an oral hearing. Upon a showing of sufficient cause, the Commissioner may grant extensions of time for filing the brief. The determination of such requests may be delegated by the Commissioner to appropriate Patent Office officials. All requests for extensions must be filed prior to the expiration of the period sought to be extended.

(b) On failure to file the brief, accompanied by the requisite fee, within the time allowed, the appeal shall stand dismissed.

Effective date. This amendment shall be effective March 30, 1971.

WILLIAM E. SCHUYLER, JR.,
Commissioner of Patents.

Approved: March 25, 1971.

JAMES H. WAKELIN, JR.,
Assistant Secretary for Science and Technology.

[FR Doc. 71-4414; Filed 3-29-71; 8:50 a.m.]

Published in 36 F.R. 5850; Mar. 30, 1971

[885 O.G. 644]

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(151) APPEAL BRIEFS UNDER RULES 192 AND 193(b)

Appellants are reminded that their briefs in appealed cases must be responsive to every ground of rejection stated by the examiner, including new grounds stated in his answer.

Where an appellant fails to respond by way of brief or reply brief to any ground of rejection, and it appears that the failure is inadvertent, appellant shall be notified that he is allowed one month to correct the defect by filing a supplemental brief. Where this procedure has not been followed, the Board of Appeals should remand the application to the examiner for compliance. When the record clearly indicates intentional failure to respond by brief to any ground of rejection, for example, by failure to file a supplemental brief within the one-month period allowed for that purpose, the examiner should inform the Board of Appeals of this fact in his answer and merely specify the claims affected.

Where the failure to respond by brief appears to be intentional, the Board of Appeals may dismiss the appeal as to the claims involved. Oral argument at a hearing will not remedy such deficiency of a brief.

This notice supersedes the notices of May 4, 1966, 826 O.G. 1060, and of Oct. 20, 1966, 833 O.G. 1.

WILLIAM E. SCHUYLER, JR.,
Apr. 26, 1971. *Commissioner of Patents.*

[886 O.G. 424]

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(152) EXAMINER TESTIMONY

As stated in Section 1701 of the Manual of Patent Examining Procedure, patent examiners are forbidden to testify as patent experts or to express opinions, in testimony or otherwise, as to the invalidity of any issued patent. Patent examiners have, in connection with litigation involving patent validity, been called to testify on factual matters. In those cases, the practice has been to permit the examiner to testify only upon the issuance of a subpoena.

Henceforth, patent examiners will be permitted to testify on deposition in patent suits, without the need for a subpoena, provided the following conditions are satisfied:

1. The party proposing to take the testimony will state in writing, that the questions to be asked of the examiner will be phrased to comply with the permissible scope of

inquiry as outlined in the protective orders contained in the Court opinions in *In re Mayewsky*, 162 USPQ 86, 89 and *Shaffer Tool Works* v. *Joy Manufacturing Co.*, 167 USPQ 170, 171: " . . . the scope of the oral depositions of the patent examiners is hereby limited to matters of fact and must not go into hypothetical or speculative areas or the bases, reasons, mental processes, analyses, or conclusions of the patent examiners in acting upon the patent applications maturing into the patent [in suit]." 167 USPQ 171.

2. That in addition to complying with the requirements of Rule 30 of the Federal Rules of Civil Procedure, the party taking the testimony will agree to give notice of the taking of the deposition of the patent examiner to the Solicitor, at least thirty days prior to the date on which the taking of the deposition is desired.
3. That the party taking the deposition arrange with the Solicitor to notice the deposition at a place convenient to the Patent Office.

If the party desiring to take the testimony of the examiner does not agree to the conditions enumerated, the Patent Office will not permit the examiner to be deposed without a subpoena and compliance with the precedure set forth in Section 7.02, Department of Commerce Administrative Order 205–12, June 29, 1967 as amended April 10, 1970. That section states:

> In any case where it is sought by subpoena, order or other compulsory process or other demand of a court or other authority (hereinafter referred to as a "demand") to require the production or disclosure of any record in the files of the Department of Commerce or other information acquired by an officer or employee of the Department as a part of the performance of his official duties or because of his official status, the matter shall be immediately referred for determination to the appropriate official described in subsection 4.01 of this order. If such official has discretion with respect to disclosure and he determines that it would be improper to comply with the demand, or if he has no discretion with respect to disclosure, the matter shall be promptly referred to the Secretary of Commerce for final determination. Unless and until the Secretary determines that the records or information should be produced, the officer or employee who appears in answer to the demand shall inform the court or other authority (*a*) that the section 7 of this order prohibits the officer or employee from producing or disclosing the records or other information demanded without the prior approval of the Secretary of Commerce, and (*b*) that the demand has been, or is being, as the case may be, referred for the prompt consideration of the Secretary. The officer or employee shall also provide the court or other authority with a copy of the regulations prescribed in this section 7 of this order, and shall respectfully request the court or other authority to stay the demand pending the receipt of instructions or directions from the Secretary of Commerce concerning the demand.

ROBERT GOTTSCHALK,
Mar. 13, 1972. *Commissioner of Patents.*

[897 O.G. 762]

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(153) TITLE 37—PATENTS, TRADEMARKS, AND COPYRIGHTS

CHAPTER I—PATENT OFFICE, DEPARTMENT OF COMMERCE

PART 1—RULES OF PRACTICE IN PATENT CASES

PART 2—RULES OF PRACTICE IN TRADEMARK CASES

Appeal to U.S. Court of Customs and Patent Appeals

The Commissioner of Patents is amending §§ 1.301 and 2.145 of the rules of practice to set forth the time in which an order for transmitting a transcript to the Court of Customs and Patent Appeals should be filed in the Patent Office. Additionally, for the purpose of clarification, all references to "subsection" in § 2.145 have been amended to read "paragraph." These amendments do not effect any change in practice, but merely notify parties filing appeals of the time necessary for the Patent Office to copy and certify a transcript. Since these changes impose no burden on any person, notice and public procedure thereon are deemed unnecessary.

Therefore, pursuant to the authority contained in section 41 of the Act of July 5, 1946 (60 Stat. 440; 15 U.S.C. 1123), and section 6 of the Act of July 19, 1952 (66 Stat. 793; 35 U.S.C. 6), Parts 1 and 2 of Chapter I of Title 37 of the Code of Federal Regulations are hereby amended as follows:

1. Section 1.301 is amended by adding a new sentence at the end. As amended, § 1.301 reads as follows:

§ 1.301 *Appeal to U.S. Court of Customs and Patent Appeals.*

Any applicant dissatisfied with the decision of the Board of Appeals, and any party to an interference dissatisfied with the decision of the Board of Patent Interferences, may appeal to the U.S. Court of Customs and Patent Appeals. The appellant must take the following steps in such an appeal: (a) In the Patent Office give notice to the Commissioner and file the reasons of appeal (see §§ 1.302 and 1.304); (b) in the court, file a petition of appeal and a certified transcript of the record within a specified time after filing the reasons of appeal, and pay the fee for appeal, as provided by the rules of the court. The transcript will be transmitted to the Court by the Patent Office on order of and at the expense of the appellant. Such order should be filed with the notice of appeal, but in no case should it be filed later than 15 days thereafter.

2. In § 2.145, paragraph (a) is amended by adding a sentence at the end; paragraphs (b), (c), and (d) are amended by substituting "paragraph" for "subsection." As amended, § 2.145 reads as follows:

§ 2.145 *Appeal to court and civil action.*

(a) *Appeal to U.S. Court of Customs and Patent Appeals.* An applicant for registration, or any party to an interference, opposition, or cancellation proceeding or any party to an application to register as a concurrent user, hereinafter referred to as inter partes proceedings, who is dissatisfied with the decision of the Trademark Trial and Appeal Board and any registrant who has filed an affidavit or declaration under section 8 of the act or who has filed an application for renewal and is dissatisfied with the decision of the Commissioner (§§ 2.165, 2.184), may appeal to the U.S. Court of Customs and Patent Appeals. The appellant must take the following steps in such an appeal: (1) In the Patent Office give notice to the Commissioner and file the reasons of appeal (see paragraphs (b) and (d) of this section); (2) in the court, file a petition of appeal and a certified transcript of the record within a specified time after filing the reasons of appeal, and pay the fee for appeal, as provided by the rules of the court. The transcript will be transmitted to the Court by the Patent Office on order of and at the expense of the appellant. Such order should be filed with the notice of appeal, but in no case should it be filed later than 15 days thereafter.

(b) *Notice and reasons of appeal.* (1) when an appeal is taken to the U.S. Court of Customs and Patent Appeals, the appellant shall give notice thereof to the Commissioner, and file in the Patent Office, within the time specified in paragraph (d) of this section, his reasons of appeal specifically set forth in writing.

(2) In inter partes proceedings, the notice and reasons must be served as provided in § 2.119.

(c) *Civil action.* (1) Any person who may appeal to the U.S. Court of Customs and Patent Appeals (paragraph (a) of this section), may have remedy by civil action under section 21(b) of the act. Such civilization must be commenced within the time specified in paragraph (d) of this section.

(2) If an applicant or registrant in an ex parte case has taken an appeal to the U.S. Court of Customs and Patent Appeals, he thereby waives his right to proceed under section 21(b) of the act.

(3) If a party to an inter partes proceeding has taken an appeal to the U.S. Court of Customs and Patent Appeals, and any adverse party to the case shall, within 20 days after the appellant shall have filed notice of the appeal to the court (paragraph (b) of this section), file notice with the Commissioner that he elects to have all further proceedings conducted as provided in section 21(b) of the act, certified copies of such notices will be transmitted to the U.S. Court of Customs and Patent Appeals for such action as may be necessary. The notice of election must be served as provided in § 2.119.

(d) *Time for appeal or civil action.* The time for filing the notice and reasons of appeal to the U.S. Court of Customs and

Patent Appeals (paragraph (b) of this section), or for commencing a civil action (paragraph (c) of this section), is 60 days from the date of the decision of the Trademark Trial and Appeal Board or the Commissioner, as the case may be. If a petition for rehearing or reconsideration is filed within 30 days after the date of the decision, the time is extended to 30 days after action on the petition. No petition for rehearing or reconsideration filed outside the time specified herein after such decision, nor any proceedings on such petition shall operate to extend the period of 60 days hereinabove provided. The times specified herein are calendar days. If the last day of time specified for appeal, or commencing a civil action falls on a Saturday, Sunday, or legal holiday, the time is extended to the next day which is neither a saturday, Sunday, nor a holiday. If a party to an inter partes proceeding has taken an appeal to the U.S. Court of Customs and Patent Appeals and an adverse party has filed notice under section 21(a)(1) of the act that he elects to have all further proceedings conducted under section 21(b) of the act, the time for filing a civil action thereafter is specified in section 21(a)(1) of the act.

Effective date. This amendment will become effective upon its publication in the Federal Register (5-11-72).

Dated: May 1, 1972.

ROBERT GOTTSCHALK,
Commissioner of Patents.

Approved: April 28, 1972.

JAMES H. WAKELIN, JR.,
Assistant Secretary for Science and Technology.

[FR Doc. 72-7159; Filed 5-10-72; 8:49 am]

Published in 37 F.R. 9175; May 11, 1972

[899 O.G. 409]

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(154) SERVICE OF COURT PAPERS ON COMMISSIONER OF PATENTS

Those having occasion to serve on the Commissioner of Patents papers having to do with court proceedings are hereby reminded that proper service by mail may be effected only by mailing the papers to the Solicitor of the Patent Office as counsel for the Commissioner. Rule 5(b) of the Federal Rules of Civil Procedure provides in pertinent part:

> Whenever under these rules service is required or permitted to be made upon a party represented by an attorney the service shall be made upon the attorney unless service upon the party himself is ordered by the court. Service upon the attorney * * * shall be made by delivering a copy to him or by mailing it to him at his last known address * * *.

Rule 25(b) of the Federal Rules of Appellate Procedure similarly provides, "Service on a party represented by counsel shall be made on counsel." The clerk of the U.S. Court of Customs and Patent Appeals has stated that, inasmuch as the rules of the Court are not specific on the manner of service in patent cases, the procedure outlined herein has the Court's approval.

Accordingly, all service copies of papers filed in court proceedings in which the Commissioner of Patents is a party which are served by mail should be addressed:

"(Name of Solicitor), Solicitor
U.S. Patent Office
Washington, D.C. 20231."

S. WM. COCHRAN,
Apr. 28, 1972. *Solicitor.*

[898 O.G. 1500]

INTERFERENCES

(155) INTERFERENCE—DECLARATION

Effective July 1, 1964, no interference will be declared between pending applications, if there is a difference of more than three (3) months in the effective filing dates of the applications in the case of inventions of a simple character, or a difference of more than six (6) months in other cases, except in exceptional situations, as determined and approved by the Commissioner.

EDWARD J. BRENNER,
June 26, 1964. *Commissioner.*

[804 O.G. 297]

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(156) INTERFERENCE PRACTICE—AFFIDAVITS UNDER RULE 204(c)

There has been difficulty in a number of cases due to uncertainty on the part of applicants concerning the requirements of affidavits to be filed under Rule 204(c) to secure interference contests with patentees whose filing dates antedate their own by more than three months, and it is hoped that the following explanation will be helpful.

In preparing affidavits under this rule applicants should have in mind the provisions of Rule 228, and especially the following facts:

1. That after these affidavits are forwarded by the Primary Examiner for the declaration of an interference they will be examined by a Board of Patent Interferences.

2. If the affidavits fail to establish with adequate corroboration acts and circumstances which would prima facie entitle applicant to an award of priority relative to the effective filing date of the patentee, an order will be issued concurrently with the notice of interference, requiring applicant to show cause why summary judgment should not be rendered against him.

3. Additional affidavits in response to such order will not be considered unless justified by a showing under the provisions of Rule 228, and if the applicant responds the patentee will receive from the applicant a copy of the response (Rule 247) and from the Patent Office a copy of the original showing (Rule 228), and will be entitled to present his views with respect thereto.

4. It is the position of the Board of Patent Interferences that all affidavits submitted must describe acts which the affiants performed or observed or circumstances observed, such as structure used and results of use or test, except on a proper showing as provided in Rule 204(c). Statements of conclusion, for example, that the invention of the counts was reduced to practice, are generally considered to be not acceptable. It should also be kept in mind that documentary exhibits are not self-proving and require explanation by an affiant having direct knowledge of the matters involved. However, it is not necessary that the exact date of conception or reduction to practice be revealed in the affidavits or exhibits if the affidavits aver observation of the necessary acts and facts, including documentation when available, before the patentee's effective filing date. On the other hand, where reliance is placed upon diligence, the affidavits and documentation should be precise as to dates from a date just prior to patentee's effective filing date. The showing should relate to the essential factors in the determination of the question of priority of invention as set out in 35 U.S.C. 102(g).

5. The explanation required by Rule 204(c) should be in the nature of a brief or explanatory remarks accompanying an amendment, and should set forth the manner in which the requirements of the counts are satisfied and how the requirements for conception, reduction to practice or diligence are met.

GEORGE W. BOYS,
Apr. 21, 1966. *Chairman, Board of Patent Interferences.*

[826 O.G. 712]

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(157) DESIGNATION OF INTERFERENCE RECORD RELIED UPON

During the taking of testimony in an interference it is frequently not clear just what testimony is necessary to a party's case, since the contentions to be made by the opposing party are not known, and in the case of a junior party it is frequently not known whether or not the senior party will take testimony. Therefore counsel taking testimony will normally cover all matters which might possibly have an effect on his case. Then, in preparing his briefs it may become apparent that certain portions of his record have no real significance as to issues involved. A review of these portions by the Board of Patent Interferences is thus unnecessary.

Accordingly, in order to reduce the time required by the Board of Patent Interferences to study the record, and to more effectively and efficiently decide the issues involved, counsel relying on an evidentiary record in interference cases are requested to file a statement as to the portions of their record upon which they rely. Such statement should be included in the briefs of the respective parties.

EDWIN L. REYNOLDS,
First Assistant Commissioner.

[846 O.G. 679 (Jan. 16, 1968)]

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(158) RULE 283
Testimony taken in another interference or action

A discovery proceeding under the control of a U.S. District Court, ancillary to an interference proceeding, is now considered to be an "action" within the meaning of Rule 283. Accordingly, "pretrial depositions" taken in a discovery proceeding in accordance with the Federal Rules of Civil Procedure and under court control may be used in the interference as to which the discovery proceeding is ancillary, subject to all other provisions of Rule 283.

RICHARD A. WAHL,
May 2, 1972. *Assistant Commissioner.*

[898 O.G. 1500]

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(159) TITLE 37—PATENTS, TRADEMARKS, AND COPYRIGHTS

CHAPTER I—PATENT OFFICE, DEPARTMENT OF COMMERCE

PART 1—RULES OF PRACTICE IN PATENT CASES

PART 5—SECRECY OF CERTAIN INVENTIONS AND LICENSES TO FILE APPLICATIONS IN FOREIGN COUNTRIES

Interference Practice

These rules changes are intended to clarify the current practice before the Board of Patent Interferences and to correct several inconsistencies in rule language. The rule change: (1) Provides for a 30-day period in which the junior party may request a final hearing to review a decision granting a motion over his opposition, (2) changes several 10-day periods to be 20-day periods, (3) provides for consideration of a motion to add or remove names of inventors, filed after the time for taking testimony has been set, to be deferred to final hearing, (4) provides that documentary exhibits not be included in bound volumes of testimony, (5) provides that in testimony papers, questions to a witness need not be consecutively numbered if paper with numbered lines is used, and (6) provides that a notice be placed in the file wrapper of a patent if claims therefrom are copied in an application under secrecy order.

On June 30, 1972, notice of proposed rulemaking regarding the amendment of §§ 1.225, 1.231, 1.251, 1.253, 1.272, 1.277, 1.281, and 5.3 of title 37, Code of Federal Regulations, dealing with interference practice, was published in the Federal Register (37 FR 12966). Interested persons were given until October 10, 1972, to submit written comments or suggestions regarding the proposed amendments. The changes in §§ 1.243 and 1.244 are made without publication of proposed rule change since it merely relieves a restriction.

Full consideration having been given to all comments received in response to the public notice, the amendments originally proposed have been somewhat modified and are hereby adopted as set forth below.

Effective date.—These amendments shall become effective June 25, 1973, and shall apply only to interferences declared after such effective date.

In consideration of the comments received and pursuant to the authority contained in section 6 of the act of July 19, 1952 (66 Stat. 793; 35 U.S.C. 6), as amended October 5, 1971 (85 Stat. 364), parts 1 and 5 of title 37, Code of Federal Regulations are hereby amended as follows:

1. Section 1.225 is revised to read as follows:

§ 1.225 *Failure of junior party to file statements or to overcome filing date of senior party.*

If a junior party to an interference fails to file a preliminary statement, or if his statement fails to overcome the prima facie case made by the filing date of the application of another party, judgment on the record will be entered against such junior party unless he has filed a motion under § 1.231, within the time set for such motions, for some action in the interference or he has opposed a motion under § 1,231(a) (2), (3), (4), or (5). If such a motion has been timely filed but does not result in action in the interference which will remove the basis for a judgment on the record, such judgment on the record will be entered unless the motion related to matters which may be reviewed at final hearing under § 1.258, and within 30 days of the decision disposing of the motion the junior party concerned requests that final hearing be set to review such matter. Also, such a junior party may within such 30-day period request a final hearing to review such a matter raised by his opposition to motion under § 1.231(a) (2), (3), (4), or (5) which was granted over his opposition.

2. In § 1.231, subparagraphs (4) and (5) of paragraph (a) and paragraph (d) are revised to read as follows:

§ 1,231 *Motions before the primary examiner.*

(a) * * *

(4) To be accorded the benefit of an earlier application or to attack the benefit of an earlier application which has been accorded to an opposing party in the notice of declaration. See § 1.224.

(5) To amend an involved application by adding or removing the names of one or more inventors as provided in § 1.45. (See par. (d) of this section.)

* * * * *

(a) All proper motions as specified in paragraph (a) of this section, or of a similar character, will be transmitted to and considered by the primary examiner without oral argument, except that consideration of a motion to dissolve will be deferred to final hearing before a Board of Patent Interferences where the motion urges unpatentability of a count to one or more parties which would be reviewable at final hearing under § 1.258(a) and such unpatentability is urged against a patentee or has been ruled upon by the Board of Appeals or by a court in ex parte proceedings. Also consideration of a motion to add or remove the names of one or more inventors may be deferred to final hearing if such motion is filed after the times for taking testimony have been set. Requests for reconsideration will not be entertained.

§ 1.243 [*Amended*]

3. In § 1.243, the last sentence is amended by deleting "10 days" and inserting in lieu thereof, the expression "20 days from the date of service of the motion."

§ 1.244 [*Amended*]

4. In § 1.244, paragraph (c) and paragraph (d), last sentence, is amended by deleting "10 days from the filing" and inserting in lieu thereof, the expression "20 days from the date of service."

5. In § 1.251, paragraph (a) is revised to read as follows:

§ 1.251 *Assignment of times for discovery and taking testimony.*

(a) A period for preparation for testimony will be set in which all parties should complete discovery and other preparatory activities, except for service by the senior party required by § 1.287(a)(1) which is governed by § 1.287(a)(2)(iii).

* * * * *

6. In § 1.253, paragraph (f) is revised to read as follows:

§ 1.253 *Copies of the testimony.*

* * * * *

(f) When the copies of the record are in typewritten form, they must be clearly legible on opaque unglazed, durable paper approximately 8½ by 11 inches in size (letter size) and one of the three copies must be a ribbon copy, but need not be executed by the certifying officer. (The certified transcript may be a properly executed carbon copy. See § 1.277). The typing shall be on one side of the paper, in not smaller than pica type; and double-spaced with a margin of 1½ inches on the left-hand side of the page. The sheets shall be bound at their left edges, in such manner to lie flat when

opened, in a volume or volumes of convenient size (approximately 100 pages per volume is suggested) provided with covers. Documentary exhibits should not be included in bound volumes of testimony. Multigraphed or otherwise reproduced copies conforming to the standards specified will be accepted.

* * * * *

7. In § 1.272, paragraph (c) is revised to read as follows:

§ 1.272 *Manner of taking testimony of witnesses.*

* * * * *

(c) By agreement of the parties, the testimony of any witness or witnesses of any party may be submitted in the form of an affidavit by such witness or witnesses. The parties may stipulate what a particular witness would testify to if called, or the facts in the case of any party may be stipulated. When evidence is submitted in one of these forms, four copies of such affidavit or stipulated testimony (§ 1.253 (a), (c), (f)) are required.

8. In § 1.277, paragraph (a) is revised to read as follows:

§ 1.277 *Form of deposition.*

(a) The testimony must be written on letter size paper, with a wide margin on the left-hand side of the page, and with the writing on one side only of the sheet. The pages must be serially numbered throughout the entire record for each party (§ 1.253(c)) and the name of the witness must be plainly and conspicuously written at the top of each page. The questions propounded to each witness must be consecutively numbered, unless paper with numbered lines is used, and each question must be followed by its answer.

* * * * *

9. Section 1.281 is revised to read as follows:

§ 1.281 *Additional time for taking testimony.*

If either party has proceeded with the taking of testimony on his behalf but is unable to complete his case because of inability to procure the testimony of a witness or witnesses within the time limited and said time has expired, and he desires additional time for such purpose, he must file a motion, accompanied by a statement under oath or in the form of a declaration setting forth specifically the cause of such inability, the name or names of the witness or witnesses, the facts expected to be proved by such witness or witnesses, the steps which have been taken to procure such testimony, and the dates on which efforts have been made to procure it. (See § 1.245 for extensions of time in other situations.)

10. In § 5.3, paragraph (b) is revised to read as follows:

§ 5.3 *Prosecution of application under secrecy order; withholding patent.*

* * * * *

(b) An interference will not be declared involving applications under secrecy order. However, if an application under secrecy order copies claims from an issued patent, a notice of that fact will be placed in the file wrapper of the patent.

* * * * *

Date: April 10, 1973.

ROBERT GOTTSCHALK,
Commissioner of Patents.

RICHARD O. SIMPSON,
Acting Assistant Secretary for Science and Technology.

[FR Doc. 73-7744; Filed 4-20-73; 8:45 am]

[910 O.G. 992]

CORRECTION OF ERRORS

(160) CERTIFICATES OF CORRECTION LISTING

Certificates of Correction are issued every Tuesday. Beginning on January 7, 1969, each issue of the OFFICIAL GAZETTE will numerically list all U.S. patents having Certificates of Correction issuing that Tuesday. The list will appear under the heading "Certificates of Correction Issued (date)."

RICHARD A. WAHL,
Assistant Commissioner.

Nov. 22, 1968.

[857 O.G. 1005]

(161) TITLE 37—PATENTS, TRADEMARKS, AND COPYRIGHTS

CHAPTER I—PATENT OFFICE, DEPARTMENT OF COMMERCE

PART 1—RULES OF PRACTICE IN PATENT CASES

Issuance of Certificates of Correction

On October 11, 1968, notice of proposed rulemaking regarding the amendment of §§ 1.322 and 1.323 of Title 37, Code of Federal Regulations, dealing with the issuance of certificates of correction, was published in the Federal Register (33 F.R. 15218). Interested persons were given 40 days in which to submit written comments, suggestions, or objections regarding the proposed amendments.

Full consideration having been given to all comments that were received in response to the public notice, the amendments originally proposed are hereby adopted without change and are set forth below.

As a result of these rule changes it will no longer be necessary for the patentee to forward his patent to the Patent Office when requesting the issuance of a certificate of correction. Upon receipt of an appropriate request, a certificate of correction will be issued and forwarded to the patentee, with an authorization permitting the patentee to physically attach same to the patent.

In connection with this change of procedure, arrangements have been made with Shepard's Citations to indicate under its listing of patents in its set entitled "Shepard's United States Citations, Patents and Trademarks" those patents for which certificates of correction have been issued. Beginning in April of this year the information will be published in that set's quarterly cumulative supplement and will appear in the bound volume thereof, when it is released.

Effective date. These amendments shall become effective upon publication in the Federal Register.

Dated: Mar. 18, 1969.

EDWARD J. BRENNER,
Commissioner of Patents.

Approved:

ALLEN V. ASTIN,
Assistant Secretary for Science and Technology.

* * * * *

[861 O.G. 680]

(162) NEW PROCEDURE FOR HANDLING CERTIFICATES OF CORRECTION

In compliance with amended Rules 322 and 323, and to expedite the issuance of certificates and reduce printing costs, practitioners are urged to submit the text of the certificate on a special form which could serve as the final copy for use in direct process reproduction (offset printing) of the certificate of correction. The *request* for issuance of the certificate (together with the fee where the error is due to applicant's mistake) should be in a separate letter accompanied by two copies of the form and a self-addressed envelope.

Where the recommended format is used and approved, one copy of said form, duly certified, will be returned to the patentee for attachment to his copy of the patent. This will eliminate the present necessity for returning the patent when requesting a certificate. The other copy of the form will be used for direct offset printing of copies of the certificate which, as heretofore, will be attached to every printed copy of the patent subsequently sold or distributed.

Copies of the form are obtainable for reproduction purposes from Correspondence and Mail Branch and from the receptionist in Bldg. 3, Crystal Plaza. Below is a sample form illustrating a variety of corrections and the suggested manner of setting out the format. Particular attention is directed to:

a. Identification of the exact point of error by reference to column and line number of the printed patent.
b. Conservation of space on the form by *typing* single space, beginning two lines down from the printed message.
c. Starting the correction to each separate column as a sentence, and using semi-colons to separate corrections within said column, where possible.
d. Two inch space left blank at bottom for signature of attesting officer.

e. Use of quotation marks to enclose the exact subject matter to be deleted or corrected; use of double hyphens (--) to enclose subject matter to be added, except for formulas.

f. Where a formula is involved, setting out only that portion thereof which is to be corrected.

Where the recommended format is not used or where the nature of the subject matter is such that it is more expedient to print by the direct image offset technique, e.g., entire sheet(s) of drawing or page(s) of specification omitted, multiple pages of corrections, intricate chemical formulas, etc., Issue and Gazette Branch will prepare the certificate as heretofore. Patentee will receive a copy for attachment to his copy of the patent.

RICHARD A. WAHL,
Apr. 1, 1969. *Assistant Commissioner.*

UNITED STATES PATENT OFFICE
CERTIFICATE OF CORRECTION

Patent No. 3,467,999 Dated April 1, 1969
James W. Worth

It is certified that error appears in the above-identified patent and that said Letters Patent are hereby corrected as shown below:

In the drawings, Sheet 3, Fig. 3, the reference numeral 225 should be applied to the plate element attached to the support member 207. Column 1, lines 45 to 49, the left-hand formula should appear as follows:

Column 2, formula XXXV, that portion of the formula reading

should read

Formula XXXVII, that portion of the formula reading "-CH_2CH-" should read -- -CH_2CH_2- --. Column 2, line 68 and column 3, lines 3, 8 and 13, " the claim reference numeral "2", each occurrence, should read -- 1 --. Column 10, line 16, cancel beginning with "12. A sensor device" to and including "tive strips." in column 11, line 8, and insert the following claim:

13. A control circuit of the character set forth in claim 1 and for an automobile having a convertible top, and including; means for moving said top between raised and lowered retracted positions; and control means responsive to said sensor relay for energizing the top moving means for moving said top from retracted position to raised position.

[862 O.G. 2]

ABSTRACTS

(163) EXAMINATION REQUIREMENTS AND PROCEDURE IN RELATION TO ABSTRACTS OF THE DISCLOSURE

The newly adopted amendment to Rule 72 which requires the submission of an *Abstract of the Disclosure* is being applied to patent applications which receive a first Office action of any kind from the Examiner on or after November 1, 1966; however, on cases filed before January 1, 1967, abstracts will not be required where the application is passed to issue on the first action.

The Examiner in the first office action on and after November 1, 1966, should require the submission of a brief abstract of the technical disclosure in the specification, the abstract to appear immediately after the title of the invention and preceding the disclosure in a separate paragraph under the heading "Abstract of the Disclosure." The following form paragraph may be used to make the requirement:

"An abstract is required, see new Rule 72(b)."

Responses to such actions should be treated under Rule 111(b) practice like any other formal matter.

Upon passing the case to issue, the Examiner should see that the abstract is an adequate and clear statement of the contents of the disclosure and generally in line with the guidelines in the following paragraphs; the abstract shall be changed by Examiner's Amendment in those instances where deemed necessary.

1. The purpose of the abstract is to provide a non-legal technical statement of the contents of the disclosure. The abstract should be an objective condensation (rather than a description) of the disclosure, in clear and concise language. Statements as to the relative merits or value, or speculative applications of the invention should be omitted.

2. The abstract should be especially designed to serve as a searching-scanning tool for the scientist, engineer or researcher in the particular art, and therefore should serve to indicate whether there is a need for consulting the full specification for details.

3. The abstract should be as brief as the subject permits. A single paragraph of 50–100 words should be sufficient.

4. Especially in the chemical field, the abstract should include a statement of the utility of the subject matter of the disclosure, particularly that which is related to the invention.

5. The abstract should be separate and independent of the "Summary of the Invention." One of the purposes of the abstract is to determine quickly the nature and gist of the technical disclosure.

RICHARD A. WAHL,
Oct. 7, 1966. *Assistant Commissioner.*

[831 O.G. 1328]

(164) CHANGE IN CONTENT OF THE PATENTS SECTION OF THE OFFICIAL GAZETTE

In keeping with the Patent Office program to encourage the use of patents in the scientific, engineering and business communities, as well as the patent profession, a change in the content of the patents section of the OFFICIAL GAZETTE is being made.

Beginning with the first issue of the OFFICIAL GAZETTE in January 1968, a copy of the abstract of each patent where an abstract is available will appear, in lieu of the claim. This change in content is being made in order that patent information may be better utilized by the patent public.

In addition to the regular issue of the OFFICIAL GAZETTE an extract of the patents section, i.e., the descriptive matter relating to patents only, will be made available. The subscription rate for the patents section extract only for the first six months period beginning with the first issue in January 1968, will be twenty-seven dollars ($27.00) and one dollar and twenty-five cents ($1.25) for a single copy. The extract will be mailed under the direction of the Superintendent of Documents, Government Printing Office, Washington, D.C., 20402, to whom all subscriptions should be made payable and all communications addressed. The title of the extract will be "Official Gazette—Patent Abstracts Section."

It is to be noted that the Government Printing Office has determined that the subscription rate for the regular issue of the OFFICIAL GAZETTE will be increased to sixty-seven dollars ($67.00) for the subscription year beginning January 1968, and the price of individual copies will be increased to one and a half dollars ($1.50). The increased rate is not related to the new program.

EDWARD J. BRENNER,
Sept. 25, 1967. *Commissioner of Patents.*

[843 O.G. 747]

(165) PARAGRAPH REQUIREMENTS FOR ABSTRACTS

In view of some difficulties experienced in determining the extent of the abstracts, the Patent Office is supplementing the Notice of October 7, 1966 (831 O.G. 1328).

An abstract should usually be limited to a single paragraph, under the heading, "Abstract of the Disclosure" as stated in Rule 72(b) and MPEP 608.01(b).

In unusual circumstances where the application disclosure does not lend itself to a single paragraph abstract, a plural paragraph abstract may be acceptable. An example of these rare situations would be an application having claims to different statutory classes, it being recognized that an abstract of the disclosure should be written to include the advancement in the art.

To avoid errors in printing where a plural paragraph abstract is deemed necessary and appropriate, the complete abstract must be set off by suitable headings to indicate where

the abstract begins and ends. Appropriate headings useable between the abstract and the subsequent description are to be found in the "Guidelines for Drafting a Model Patent Application Under the Revised Rules" (832 O.G. 5; MPEP 608.01(a)).

RICHARD A. WAHL,
Feb. 16, 1968. *Assistant Commissioner.*

[854 O.G. 287]

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(166) PATENT ABSTRACTS

The provision in Rule 72(b) of the Rules of Practice in Patent Cases, relating to inclusion of a "brief abstract of the technical disclosure" in applications for patent, has now been in effect for two and one-half years.

Instructions regarding abstract preparation were published at 831 O.G. 1328, October 25, 1966, and at about the same time a pamphlet entitled "Guidelines for the Preparation of Patent Abstracts" was published and made available to personnel concerned with the preparation and review of abstracts of the type noted.

Abstracts are becoming more and more significant in the field of mechanized and computerized prior art retrieval. It is therefore important that they reach the optimum quality level at the earliest possible date.

During the past year abstracts, in a random sample of approximately 1000 allowed applications, were audited or reviewed for purposes of determining degree of compliance with the aforenoted instructions and guidelines. Steady improvement in the quality of the abstracts was noted in the course of the review. The review clearly indicated, however, a need for further improvement as well as a need for certain modifications and revisions in the earlier published guidelines. There also appeared to be a need for reemphasis of portions of the guidelines.

Accordingly, a revised set of guidelines consonant with the needs suggested by the audit have been promulgated, and are set forth below for use in the preparation and review of patent abstracts.

GUIDELINES FOR THE PREPARATION OF PATENT ABSTRACTS

Background

The Rules of Practice in Patent Cases require that each application for patent include an Abstract of the Disclosure, Rule 72(b).

The content of a patent abstract should be such as to enable the reader thereof, regardless of his degree of familiarity with patent documents, to ascertain quickly the character of the subject matter covered by the technical disclosure and should include that which is new in the art to which the invention pertains.

The abstract is not intended nor designed for use in interpreting the scope or meaning of the claims, Rule 72(b).

Content

A patent abstract is a concise statement of the technical disclosure of the patent and should include that which is new in the art to which the invention pertains.

If the patent is of a basic nature, the entire technical disclosure may be new in the art, and the abstract should be directed to the entire disclosure.

If the patent is in the nature of an improvement in an old apparatus, process, product, or composition, the abstract should include the technical disclosure of the improvement.

In certain patents, particularly those for compounds and compositions, wherein the process for making and/or the use thereof are not obvious, the abstract should set forth a process for making and/or a use thereof.

If the new technical disclosure involves modifications or alternatives, the abstract should mention by way of example the preferred modification or alternative.

The abstract should not refer to purported merits or speculative applications of the invention and should not compare the invention with the prior art.

Where applicable, the abstract should include the following: (1) if a machine or apparatus, its organization and operation; (2) if an article, its method of making; (3) if a chemical compound, its identity and use; (4) if a mixture, its ingredients; (5) if a process, the steps. Extensive mechanical and design details of apparatus should not be given.

With regard particularly to chemical patents, for compounds or compositions, the general nature of the compound or composition should be given as well as the use thereof, e.g., "The compounds are of the class of alkyl benzene sulfonyl ureas, useful as oral anti-diabetics." Exemplification of a species could be illustrative of members of the class. For processes, the type reaction, reagents and process conditions should be stated, generally illustrated by a single example unless variations are necessary.

Language and Format

The abstract should be in narrative form and generally limited to a single paragraph within the range of 50 to 250 words. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should sufficiently describe the disclosure to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "This disclosure concerns," "The disclosure defined by this invention," "This disclosure describes," etc.

Responsibility

Preparation of the abstract is the responsibility of the applicant. Background knowledge of the art and an appreciation of the applicant's contribution to the art are most important in the preparation of the abstract. The review of the abstract, for compliance with these guidelines, with any necessary editing and revision on allowance of the application is the responsibility of the examiner.

Sample Abstracts

A heart valve with an annular valve body defining an orifice and having a plurality of struts forming a pair of cages on opposite sides of the orifice. A spherical closure member is captively held within the cages and is moved by blood flow between open and closed positions in check valve fashion. A slight leak or backflow is provided in the closed position by making the orifice slightly larger than the closure member. Blood flow is maximized in the open position of the valve by providing an inwardly convex contour on the orifice-defining surfaces of the body. An annular rib is formed in a channel around the periphery of the valve body to anchor a suture ring used to secure the valve within a heart.

A method for sealing, by application of heat, overlapping closure panels of a folding box made from paperboard having an extremely thin coating of moisture-proofing thermoplastic material on opposite surfaces. Heated air is directed at the surfaces to be bonded, the temperature of the air at the point of impact on the surfaces being above the char point of the board. The duration of application of heat is made so brief, by a corresponding high rate of advance of the boxes through the air stream, that the coating on the reverse side of the panels remains substantially non-tacky. The bond is formed immediately after heating within a period of time for any one surface point less than the total time of exposure to heated air of that point. Under such conditions the heat applied to soften the thermoplastic coating is dissipated after completion of the bond by absorption into the board acting as a heat sink without the need for cooling devices.

Amides are produced by reacting an ester of a carboxylic acid with an amine, using as catalyst an alkoxide of an alkali metal. The ester is first heated to at least 75° C. under a pressure of no more than 500 mm. of mercury to remove moisture and acid gases which would prevent the reaction, and then converted to an amide without heating to initiate the reaction.

RICHARD A. WAHL,
Apr. 23, 1969. *Assistant Commissioner.*

[862 O.G. 653]

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(167) DISCONTINUATION OF THE PUBLICATION "PATENT ABSTRACTS SECTION OF THE OFFICIAL GAZETTE"

Effective Mar. 31, 1970, the Patent Office will no longer print the publication "Patent Abstracts Section of the Official Gazette." Reasons for this decision are the desire to incur a

saving in printing costs, the same information now appears in the OFFICIAL GAZETTE, and the number of subscribers no longer warrants a separate publication.

The Superintendent of Documents, U.S. Government Printing Office, will contact subscribers to the "Patent Abstracts" for appropriate action regarding their subscriptions.

CLARENCE A. KALK,
Acting Assistant Commissioner for Administration.

Feb. 9, 1970.

[872 O.G. 1]

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(168) CLAIMS VERSUS ABSTRACTS FOR PUBLICATION IN THE PATENT OFFICIAL GAZETTE

Abstracts have been required for all patent applications filed since January 1, 1967. Subsequent to the requirement for abstracts, the Office began substituting abstracts for patent claims in the OFFICIAL GAZETTE. At the present time, abstracts are used exclusively in the OFFICIAL GAZETTE to describe the inventions for which patents issue each week.

Over the last several months, the Office has become increasingly aware of the disparity of views which exist regarding the merits of the publication of claims or abstracts in the OFFICIAL GAZETTE. The utilization of abstracts in the OFFICIAL GAZETTE was initially based on a desire to make that publication more useful to the non-patent community. However, it now appears that a significant portion of the patent community, especially in the chemical area, would prefer the publication of claims in the OFFICIAL GAZETTE as more useful than the publication of abstracts.

To assist the Office in resolving this issue, it is requested that interested parties submit their comments in writing prior to January 1, 1973. Such comments should be addressed to the Commissioner of Patents, Washington, D.C., 20231.

ROBERT GOTTSCHALK,
May 22, 1972. *Commissioner of Patents.*

[899 O.G. 820]

REFERENCES

(169) CITATION OF PUBLICATIONS AND FOREIGN PATENTS

Foreign Patents

In accordance with Rule 107, for each foreign patent cited, there should be indicated the number of sheets of drawing and pages of specification and also the sheet number(s) and page number(s) specifically relied upon if less than the entire disclosure is used. Because it is essential to conserve space in the Examiner's file of applications and to minimize the cost to applicant under the automatic supply of references cited, whenever the total number of sheets and pages in any foreign patent exceeds ten, the Examiner should keep the total relied on as near to ten as possible. Applicants who desire a copy of the complete foreign patent or of the portion not "relied on" must order it, not through the automatic supply system, but in the usual manner.

Publications

Publications such as German allowed applications and Netherlands printed specifications should be similarly handled. With other publications such as books, periodicals and catalogues, the specific pages relied upon should be cited. If the copy relied upon is located only in the Group making the action (there is no call number), the additional information, "Copy in Group —" should be given.

RICHARD A. WAHL,
Jan. 4, 1965. *Acting Superintendent, Patent Examining Corps.*

[811 O.G. 293]

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(170) AUTOMATIC FURNISHING FREE COPIES OF CITED REFERENCES

Commencing November 1, 1965, one complete set of references cited by Examiners in Office Actions will be automatically supplied without charge simultaneously with the mailing of the actions.

Additional copies of references desired must be properly identified and purchased from the regular Patent Office copy supply facilities.

This supersedes the notice, "Providing Copies of Cited References to Applicants" which was published in 809 O.G. 317 on December 8, 1964.

C. A. KALK,
Oct. 1, 1965. *Director of Administration.*

[819 O.G. 1335]

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(171) CITATION OF REFERENCES AT TIME OF ALLOWANCE

Commencing March 15, 1966, references cited by examiners when passing an application to issue will no longer be supplied under the automatic plan. Copies of these references, if desired, must be purchased from the regular Patent Office copy supply facilities.

Except as above indicated references cited by examiners in Office actions will continue to be automatically supplied without charge simultaneously with the mailing of the actions.

This modifies the notice, "Automatic Furnishing Free Copies of Cited References," which was published in 820 O.G. 1 on November 2, 1965.

RICHARD A. WAHL,
Feb. 24, 1966. *Assistant Commissioner of Patents.*

[824 O.G. 805]

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(172) ORDERS FOR REFERENCES CITED IN SHORTENED STATUTORY PERIOD ACTIONS

Effective immediately, the Patent Office will no longer supply copies of references cited on a "Special Handling" basis without the usual additional charge. This service was announced in the OFFICIAL GAZETTE on June 2, 1964.

The Patent Office has, since November 1, 1965, been furnishing one complete set of references cited by Examiners in Office Actions automatically, without charge, simultaneously with the mailing of the actions.

[825 O.G. 811 (Apr. 19, 1966)]

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(173) POLICY RE: VOLUNTARY CITATION OF PRIOR ART BY APPLICANTS

Effective immediately, the following policy is being adopted in the hope of encouraging more frequent and meaningful citation of prior art by applicants and their attorneys on a voluntary basis.

Prior art cited by applicants or their attorneys within thirty days of the filing of a patent application, or prior to the first Office action, whichever is later, will be fully considered by the Examiner, will be part of the official record, and will be included in the list of references cited in the patented file and in the printed patent provided the applicant:

(a) Limits the number of references cited to not more than five separate items, unless a satisfactory explanation is given as to why more than five citations are necessary, and submits one copy of each of the references; and

(b) Submits a detailed discussion of the references, which discussion points out, with the particularity required by Rule 111(b) and (c), how the claimed subject matter is distinguishable over the references.

References cited by applicants or attorneys under the "special" examining procedure announced on March 2, 1965, and published in 812 O.G. 953 will also be included in the list of references cited in the patented file and printed patent.

Prior art cited by applicants and attorneys under the practice set forth in the notices published in 797 O.G. 733; 802 O.G. 601; 804 O.G. 1 and 805 O.G. 294 will no longer be listed in the printed patent.

EDWARD J. BRENNER,
Apr. 13, 1967. *Commissioner of Patents.*

[837 O.G. 1032]

(174) REFERENCE CITATION IN CONTINUATION APPLICATIONS

Effective December 1, 1967, the Office will discontinue the practice of furnishing, automatically and without charge, copies of references cited in continuation applications if they had been previously cited in the parent application.

In the rare instance where no art is cited in a continuation application, all the references cited during the prosecution of the parent application will be listed at allowance for printing in the patent.

Other continuing applications, including continuation-in-part and divisional applications, are not affected by this change.

RICHARD A. WAHL,
Nov. 1, 1967. *Assistant Commissioner.*

[846 O.G. 1022]

(175) PATENT CLASSIFICATION

As a service to the public, effective with the issue of December 10, 1968, all patents will contain at the end of the specification, after the "List of References," a list of all classes and subclasses in the U.S. Classification System into which the patent was cross-referenced at the time of issue. This listing will be headed "U.S. Cl.—X.R."

Beginning with the issue of January 7, 1969, all patents will also include International Patent Classifications in the heading and identified as " Int. Cl."

RICHARD A. WAHL,
Nov. 29, 1968. *Assistant Commissioner.*

[858 O.G. 1029]

(176) CONCORDANCE: UNITED STATES PATENT CLASSIFICATION TO INTERNATIONAL PATENT CLASSIFICATION

A revised and updated edition of the "Concordance: United States Patent Classification to International Patent Classification" has been published and is available from the Superintendent of Documents, U.S. Government Printing Office, for $1.50. This second edition is a revision of the edition of April 1969, and contains about 3,000 changes, corrections and additions suggested by users of the book. It includes all new U.S. classes published up to and including November 1971.

W. W. BURNS, JR.,
Apr. 12, 1972. *Administrator, Office of Search Systems and Documentation.*

[898 O.G. 368]

(177) MACHINE SEARCH SERVICE

The Mechanized Search Service presently used by the Patent Office in making examiner searches in the field of Data Processing is offered for public use under the conditions and procedures prescribed herein.

This system is available as a punched card file for an initial fee of $40.00 each. The instruction manual "Search System Manual for the Field of Data Processing-ICIREPAT System DP" is included as part of the "package." A renewal fee of $35.00 per year entitles the subscriber to receive a set of cards for new issues.

This file which presently exists for mechanized searching consists of:

Field	Class	Subclass	File content [1]
Data processing	235	157	2,965 U.S. Patents.
	340	172.5	622 Literature articles.

[1] Approximate number of documents in the files as of June 30, 1971.

The scope and organization of this file is described in the publication "Search System Manual for the Field of Data Processing-ICIREPAT System DP."

A substantial portion of this publication is devoted to the technique of preparing the code sheet which is the means provided for expressing the search query for machine handling.

Effective use of the mechanized search system and the achievement of competent results are dependent upon understanding and care in applying the coding information offered in this publication.

The Patent Office will accept requests for machine searches submitted on code sheets prepared in accordance with instructions contained in the aforedescribed publication. Requests received in any other form will not be accepted, as the Patent Office will not assume the responsibility for the formulation of a search query or the representation of a query in coded form. The Patent Office will, however, provide assistance to persons seeking aid in resolving specific questions which may arise in completing the code sheet prior to submitting the search request. The code sheet serves as the query form for searches on this system.

One or more Examiners have been designated to provide such assistance. A request for a conference on mechanized search questions in the field of Data Processing may be directed to the Supervisory Primary Examiner of Group Art Unit 237.

A search constitutes all of the machine and related operations required to retrieve from a data file, information contained therein which fulfills the search instructions represented on a code sheet. When several code sheets are required to cover the full search need, each code sheet will constitute a search. A search will be considered to be complete and proper even under circumstances in which proper operation of the system produces output representing documents which, while fulfilling the coded requirements, are determined by the user to lack pertinence or relevance in any or a sufficient degree; or, conversely, fails to produce an output.

The cost per search, which includes a list of the document references retrieved, is $5.00. Copies of all U.S. patent and non-patent literature references will be supplied, if requested as part of the search service, for additional cost at established rates, chargeable to a deposit account maintained by the search purchaser with the Patent Office.

Code sheets for the machine search file may be obtained from the Patent Office. Address request to the Patent Office, Office of Search Systems and Documentation, Washington, D.C., 20231.

After any necessary consultation with the Examiner in preparing the search query, address search requests together with the completed code sheet and fee to the Commissioner of Patents, Washington, D.C., 20231. Attention should be directed to the Office of Search Systems and Documentation, Office of the Adminstrator.

[891 O.G. 886 (Oct. 19, 1971)]

(178) MACHINE SEARCH SERVICE

The mechanized retrieval system formerly used by the Patent Office in making examiner searches in the field of steroids has been replaced by the ICIREPAT Shared System for this field (System ST). This new system is based upon the original U.S. Patent Office system, with certain additions and modifications. Following are the changes that have been or are being effected:

1. Two sub-systems have been created, one for steroid structures and the other for processes which produce steroid structures.
2. Patents relating to seco, nor, homo- and hetero steroids are within the scope of the new ICIREPAT system and are being added to the system.
3. The new system does not at this time include U.S. patents issued prior to 1965. It is anticipated that U.S. patents from 1961–1964 will be added. To date, no plans have been made for the indexing of non-patent literature.
4. Foreign patents relating to structures and processes within the scope of the sub-systems are being indexed by cooperating foreign patent offices.
5. The ICIREPAT structure sub-system includes substantially the same capabilities for searching compounds as the old system; the card format, however, has been modified.
6. Both the manual and the code sheet have been revised to reflect these additions and modifications as well as a number of other minor changes. The manual is still under revision; however, draft copies are available to users of the system.

The ICIREPAT System ST is offered for public use under the conditions and procedures prescribed herein.

This system is available as a punched card file for an initial fee of $40.00. The instruction manual is still under revision; however, as noted above, draft copies are provided with the card file. A renewal fee of $35.00 per year entitles the subscriber to receive cards for newly issuing patents as well as for older documents (i.e., those indicated in items 2, 3 and 4 above) as these cards become available.

This file which presently exists for mechanized searching consists of:

Field	Class	Subclass	File content [1]
Steroid	260	239.5+	1,937 U.S. Patents.
		397+	1,111 Foreign Patents.

[1] Approximate number of documents in the files as of October 1, 1972.

A substantial portion of the instruction manual is devoted to the technique of preparing the code sheet which is the means provided for expressing the search query for machine handling. Effective use of the mechanized search system and the achievement of competent results are dependent upon understanding and care in applying the coding information offered in this publication.

The Patent Office will accept requests for machine searches submitted on code sheets prepared in accordance with instructions contained in the aforedescribed manual. Requests received in any other form will not be accepted, as the Patent Office will not assume the responsibility for the formulation of a search query or the representation of a query in coded form. The Patent Office will, however, provide assistance to persons seeking aid in resolving specific questions which may arise in completing the code sheet prior to submitting the search request. The code sheet serves as the query form for searches on this system.

One or more Examiners have been designated to provide such assistance. A request for a conference on mechanized search questions in the field of steroids may be directed to the Supervisory Primary Examiner of Group Art Unit 124.

A search constitutes all of the machine and related operations required to retrieve from a data file, information contained therein which fulfills the search instructions represented on a code sheet. When several code sheets are required to cover the full search need, each code sheet will constitute a search. A search will be considered to be complete and proper even under circumstances in which proper operation of the system produces output representing documents which, while fulfilling the coded requirements, are determined by the user to lack pertinence or relevance in any or a sufficient degree; or, conversely, fails to produce an output.

The cost per search, which includes a list of the document references retrieved, is $5.00. Copies of all U.S. and foreign patent references will be supplied, if requested as part of the search service, for additional cost at established rates, chargeable to a deposit account maintained by the search purchaser with the Patent Office.

Code sheets for the machine search file may be obtained from the Patent Office. Address requests to the Patent Office, Office of Patent Classification, Washington, D.C. 20231.

Requests for searches in the original Steroid system will still be accepted, since the revised ICIREPAT system at present includes among the U.S. patents only those which issued after January 1, 1965. The content of this original file, updating for which terminated with the issues of January 1972, is as follows:

5940 U.S. patents
111 Foreign patents
4179 Non-patent literature items

The instruction manual is entitled "Revised Steroid Search System Coding Manual," R & D Report No. 19. Copies of this manual and code sheets may also be obtained from the Office of Patent Classification, and searches may be submitted according to the same procedures and guidelines set forth above for the new ICIREPAT Steroid system.

EDWIN R. MACKERT,
Acting Administrator,
Office of Patent Classification.

[905 O.G. 70]

POSTAL SERVICE EMERGENCY

(179) EMERGENCY SITUATION IN THE U.S. POSTAL SERVICE

In view of the present emergency situation in U.S. postal service, the U.S. Patent Office is taking the following actions.

In regard to pending applications, the time for taking any action or paying any fee expiring during the period beginning March 16 and ending April 15, 1970, both dates inclusive, is hereby extended for ONE MONTH. However, no extension shall exceed a maximum period for response provided for in the Statutes.

U.S. Department of Commerce Field Offices have been designated, on an emergency basis, as receiving stations for the U.S. Patent Office. All papers should be enclosed in a sealed envelope and deposited in a Field Office. Such papers will be considered as received in the U.S. Patent Office on the day of deposit. The Field Office will date stamp each envelope so deposited, and applicants or their representatives should assure the legibility of the date stamp. Field Offices will place a corresponding date stamp on receipt cards provided by the depositor, which must completely identify the papers deposited.

Field Office deposits should, if possible, be limited to such papers wherein the Patent Statutes do not provide a remedy for failure to obtain a particular date. Examples of these types of papers are: checks in payment of issue fees, new application papers wherein priority dates or statutory bars may be involved, amendments where the six month statutory period for response is about to expire, etc.

The Field Office in New York designated to receive papers for the U.S. Patent Office is located at:

41st Floor, Federal Office Bldg.
26 Federal Plaza, Foley Square
New York, N.Y.

The designated Field Office in Hartford, Connnecticut is located at:

Room 610–B, Federal Office Bldg.
450 Main St.
Hartford, Conn.

The addresses of Field Offices in other cities are listed in local directories and are available upon inquiry to the Commissioner of Patents.

RICHARD A. WAHL,
Mar. 19, 1970. *Acting Commissioner of Patents.*

[872 O.G. 1383]

(180) PATENT OFFICE—POSTAL SERVICE

In view of the return to normal operations of the United States postal service, the Notice of Mar. 19, 1970 (published in the OFFICIAL GAZETTE of Mar. 24, 1970, vol. 872, No. 4) is hereby revised.

After Apr. 15, 1970, the U.S. Department of Commerce Field Offices will no longer be designated as receiving stations for the U.S. Patent Office. Accordingly, after the abovenoted date, all letters or other papers relating to patent and trademark cases will be considered as received in the U.S. Patent Office only if they are filed in accordance with Rule 6 of the Rules of Practice in Patent Cases as amended Nov. 26, 1969.

All other provisions of the Notice of Mar. 19, 1970 and the Notice of Mar. 26, 1970, relating to Trademarks, remain in effect.

WILLIAM E. SCHUYLER, JR.
Mar. 27, 1970. *Commissioner of Patents.*

[873 O.G. 319]

(181) FILE HISTORY OF APPLICATIONS AFFECTED BY POSTAL EMERGENCY

As a result of the postal emergency, the time for taking any action or paying any fee in the U.S. Patent Office expiring between the dates of March 16, 1970 and April 15, 1970, both dates inclusive, was automatically extended for one month, provided it did not exceed a maximum period for response provided in the Statutes. (See O.G. of March 24, 1970 or March 31, 1970, 872 O.G. 1383 and April 7, 1970, 873 O.G. TM 2.)

Since this extension of time was automatic there will be nothing in the individual files to indicate that a paper filed

during that period was, in fact, timely though it was received later than its apparent due date.

In order to provide a complete history in the affected files and to dispel any question as to abandonment in the record of a patented file, applicants or their attorneys are requested to file a paper explaining these circumstances. A separate paper should be filed in each case so affected (identified by Serial No., filing date, title and applicant's name) and may be merely a copy of the notice which authorized the one-month extension or should specifically refer to and identify that notice.

RICHARD A. WAHL,
Apr. 27, 1970. *Assistant Commissioner of Patents.*

[874 O.G. 688]

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(182) U.S. DEPARTMENT OF COMMERCE FIELD OFFICES TO SERVE AS RECEIVING STATIONS ONLY IN DECLARED EMERGENCIES

During the recent postal emergency, Field Offices of the U.S. Department of Commerce were designated as receiving stations for the U.S. Patent Office (according to the Notices of March 19, 1970, 872 O.G. 1383 and March 26, 1970, 873 O.G. TM 2). In view of the subsequent resumption of normal postal operations, that emergency arrangement was discontinued in accordance with the notice of March 27, 1970, 873 O.G. 319. After April 15, 1970, the normal practice with respect to the filing of all letters and other papers relating to patent and trademark matters in the U.S. Patent Office was resumed.

The Patent Office has received suggestions proposing that the Field Offices continue to serve as receiving stations for the U.S. Patent Office. These suggestions have received careful and sympathetic consideration. However, it has been concluded that any activities of the Field Offices in this connection must be restricted, in the future, to any emergency officially announced by the Patent Office as requiring such action.

RICHARD A. WAHL,
Apr. 27, 1970. *Acting Commissioner of Patents.*

[874 O.G. 688]

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(183) PATENTS AND TRADEMARKS

Relief in Cases Affected by the Postal Emergency of March 1970

On June 30, 1971, President Nixon signed into law Public Law 92-34.

Public Law 92-34 requires claims for the benefit of an earlier filing date (Section 1.) and requests for such other relief as may be appropriate (Sec. 2.) to be filed in the Patent Office within 6 months after enactment, that is by December 30, 1971. Failure to file a statement within the noted period will result in loss of right to take advantage of the benefits of the law. Further explanation or evidence may be required at a subsequent time. Public Law 92-34 provides relief only for situations caused by the postal emergency which began on March 18, 1970, and ended on or about March 30, 1970, and for which there is no remedy under existing law.

The following explanation is designed to serve as a guide for persons desiring relief under the law.

The verified statement required to be filed under sections 1 and 2 of the law may be by any of the following:

(a) Applicant(s) for patent or trademark registration;
(b) Patentee(s) or trademark registrant;
(c) Owner(s) of record.

In cases involving plural inventors, statements made under (a) or (b) must be signed by all inventors.

The verified statement must specify the particular earlier date of receipt in the Patent Office to which the applicant, patentee or trademark registrant, or owner of record believes his application, fee or other paper would be entitled except for the delay caused by the postal emergency of March, 1970. The statement must be verified, that is, in the form of an oath or declaration. (37 CFR 1.68 (Patent Rule 68) and 2.20 (Trademark Rule 2.20).)

Evidence will not normally be required or considered by the Patent Office regarding a claimed filing date of March 18, 1970, or later, in applications actually filed before June 1, 1970. Claims for earlier filing dates in cases actually filed after June 1, 1970, or claiming a date prior to March 18, 1970, will be considered prima facie unreasonable unless an acceptable explanation of the basis for the claim is filed in the Patent Office with the claim or within 1 month or such longer time as may be prescribed by the Commissioner. Any claim not accepted by the Patent Office because it is obviously defective on its face or unreasonable may be subjected to further review by petition to the Commissioner.

The statement should adequately identify the involved application, patent, or trademark registration by including the name of the applicant, patentee or registrant, title of the invention or an identification of the mark, serial number, filing date, group art unit number and any other identifying data such as status of the case (e.g., awaiting first action, amendment, brief, etc.). Acceptable statements will be acknowledged, made of record and retained in the Patent Office files.

When practical, earlier filing dates accorded under this law, as well as the originally granted filing dates, will be identified on ensuing patents and trademark registrations. These dates will also be included in the OFFICIAL GAZETTE in connection with patents, trademark registrations and trademarks published for opposition. In other cases, such as applications in issue prior to filing of a claim, the patent or trademark registration number and claimed filing dates will be published in the OFFICIAL GAZETTE after December 30, 1971.

Patents issued with earlier filing dates afforded by this law will not be effective as prior art as of such earlier filing dates under subsection 102(e) of title 35 of the United States Code.

In a pending patent application in which a claim for an earlier filing date has been acknowledged under this law, applicants need not file a Rule 131 affidavit to overcome a reference having an effective filing date between the "earlier" and the actual filing date of the application. Intervening references of this type will be cited but not applied by the examiner. Although a statement claiming an earlier date is accepted by the Patent Office, the claimed earlier date may be called into question in subsequent inter partes proceedings in the Patent Office or in the courts. In these proceedings, the applicant or owner may be required to present further evidence establishing the filing date to which the application is entitled. In such cases a definite determination shall be made as to whether the applicant is entitled to the earlier date under the law.

In cases where a patent application or an application for registration or late renewal of a trademark is determined to have become abandoned for failure to meet a statutory time limit because of the postal emergency, the application will automatically be restored to pending status by the acceptance of the request, and prosecution or other processing of the application will be resumed. Similarly, if a trademark registration is determined to have been cancelled for failure to meet the statuory time limit within which to file the affidavit required under section 8 of the Trademark Act (15 U.S.C. 1058a) because of the said emergency, the order for cancellation will be rescinded.

As explained in the notice of January 26, 1971 (882 O.G. 1342), applicants who may be entitled to earlier filing dates should note that a change in their U.S. filing date might, in turn, alter the date of expiration of the 6- and 12-month periods for filing applications abroad under provisions of the Paris Convention for the Protection of Industrial Property.

WILLIAM E. SCHUYLER, JR.,
Commissioner of Patents.

Dated: July 14, 1971.
JAMES H. WAKELIN, JR.,
Assistant Secretary for Science and Technology.

[FR Doc. 71-10469; Filed 7-22-71; 8:52 a.m.]

36 F.R. 13694; July 23, 1971

[889 O.G. 1064]

MISCELLANEOUS

(184) JOINT UNITED STATES-REPUBLIC OF THE PHILIPPINES PROGRAM

I am pleased to announce the availability of an exchange program on examination results between the United States

and the Republic of the Philippines. The program involves patent applications filed in the United States which are subsequently followed by corresponding applications filed in the Republic of the Philippines and patent applications filed in the Philippines subsequently followed by corresponding applications filed in the United States.

The program would operate as follows:

The applicant would file his application in the U.S. Patent Office which would process the application in the normal manner and examine the application in the usual time sequence.

If the applicant should later file a corresponding application in the Philippines Patent Office, he may elect to use the special filing procedure. Under this special filing procedure, applicant files his application in the Philippines accompanied by a notice of election to participate in the special procedure; which notice of election contains a certification that the description (excluding references to related applications), claims and drawings are identical to those of the corresponding application originally filed in the United States. The earlier filed application must be fully identified; and, in applications without a claim of priority, a certified copy of the earlier filed U.S. application must be submitted to the Philippines Patent Office. In addition, applicant must also agree that all amendments to his U.S. application will also be made with respect to his application filed in the Philippines.

In the U.S. Patent Office, applicant will regularly file two copies of each amendment, one copy must be marked "Copy for Philippines Patent Office." Upon termination of prosecution the U.S. Patent Office shall remove all copies so marked from the U.S. file and promptly forward the same to the Philippines Patent Office.

Election forms for participation in this special program must be signed in duplicate and simultaneously accompany the application to be filed in the Philippines.

Upon receipt of properly filed notice of election, the Philippines Patent Office would notify the U.S. Patent Office of the election by forwarding one copy of the election forms to the U.S. Patent Office. The Philippines Office would defer action on the Philippines application pending receipt of information as to the disposition of the application by the U.S. Patent Office. If no such information is received by the Philippines Office within a reasonable amount of time from the date of filing in the Philippines, the Philippines Office may, either on its own initiative, or applicant's request, inquire as to the status of the U.S. application and, if desired, proceed with its own independent examination.

Upon disposal of the application by the U.S. Patent Office, appropriate information will be sent to the Philippines Patent Office which will include all necessary identifying data, whether allowed or abandoned, notice of allowance, copies of documents cited during examination, a copy of the last office action and, when necessary, any earlier actions which may be included by reference in the last action. The Philippines Office would then make their own complete office action based upon the claims as amended with the U.S. Patent Office, performing whatever checks desired and search for copending interfering applications. Alternatively, the Philippines may request applicant to show cause why the results of the U.S. examination should not be accepted in the Philippines. All avenues of appeal would remain open to the applicant.

Where copending applications are cited and applied during examination in the U.S. Patent Office, full examination would not be forwarded to the Philippines Patent Office, and the fact that a U.S. copending application was cited would be noted as a matter of information, since such references would be inapplicable in the Philippines.

Where the application originates in the Philippines Patent Office and is subsequently filed in the U.S. Patent Office, a similar procedure as outlined above consonant with U.S. Law will be followed.

It is believed that this program will facilitate the handling of U.S. origin applications filed in the Republic of the Philippines resulting in a savings in time and expense of prosecution to U.S. applicants.

Election forms for participation in this special program are now available from The Foreign Exchange Section, Office of Patent Services.

GERALD D. O'BRIEN,
Assistant Commissioner.

[847 O.G. 331 (Feb. 13, 1968)]

(185) JOINT U.S.-SWEDISH SEARCH EXCHANGE

A program for the exchange of search results between the patent offices of Sweden and the United States was initiated in February 1969. The program which is now in full operation involves patent applications filed in one country which are subsequently followed by corresponding applications filed in the other.

The program operates as follows:

The applicant files an application in the U.S. Patent Office which then processes the application in the customary manner and in the usual time sequence.

If the applicant later files an application in Sweden claiming the priority of the U.S. application, the Patent Office of Sweden notifies the U.S. Patent Office of this filing by forwarding a request for a list of the references cited by the U.S. examiner in the first office action on the merits.

Where the application originates in Sweden and is subsequently filed in the U.S. Patent Office, a similar procedure is followed whereby the U.S. office requests and the Swedish office supplies a list of references cited by the Swedish examiner.

This program, which involves only the furnishing of listings of references cited, could improve the quality of the patents granted by each office.

WILLIAM E. SCHUYLER, JR.,
Aug. 26, 1969. *Commissioner of Patents.*

[866 O.G. 1031]

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(186) TITLE 37—PATENTS, TRADEMARKS, AND COPYRIGHTS

CHAPTER 1—PATENT OFFICE, DEPARTMENT OF COMMERCE

PART 1—RULES OF PRACTICE IN PATENT CASES

PART 3—FORMS FOR PATENT CASES

Amendment of Rules re New Defensive Publication Program; Additional Form

Section 1.11, 1.14, 1.101, 1.103 and 1.108 of Title 37 CFR (Patent Rules 11, 14, 101, 103 and 108) are amended or revised and a new § 1.139 (Patent Rule 139) is added to take effect May 1, 1968, for the purpose of instituting a new defensive publication program. A new section 3.50 is added for the purpose of implementing the new program.

The general substance of the proposed revisions and additions was published in the Federal Register of February 20, 1968 (38 F.R. 3189). A hearing was held on March 27, 1968, and all persons, who desired to, were invited to attend and to submit their views, objections, recommendations or suggestions. Both oral and written comments were carefully considered. The sections are being revised substantially as published with a few additional changes.

This program is intended to provide better service to the public by making available the technical disclosure of certain applications in which the owner may prefer to publish an abstract in lieu of obtaining an examination by the Patent Office. The defensive publication would be in the form of an abstract of the technical disclosure, printed in the OFFICIAL GAZETTE and made a part of the Patent Office search files.

This program will be open to any applicant having an application awaiting action by the Patent Office and who files a written request no later than eight (8) months after the earliest U.S. effective filing date of the designated application and agrees to the conditions of the program, including waiving his patent rights based on the designated application, opening the complete application to inspection by the general public upon publication of the abstract, expressly abandoning his application, the abandonment to take effect five (5) years after the earliest U.S. effective filing date of the application unless within that period interference proceedings have been initiated, and waiving his rights to a patent on a continuing application filed after the expiration of thirty (30) months from the earliest U.S. effective filing date of the designated application. *Until November 1, 1968, this program will be open to any pending application awaiting first action by the Patent Office at the time of the request without regard to the filing date of that application.*

In accordance with existing rules and procedures interferences may be declared with applications and patents. During the period beginning with the suggestion of claims by the Patent Office or the filing of claims by the applicant

copied from a patent and ending with the termination of proceedings if an interference is declared or the mailing of a decision refusing to declare the interference, abandonment by reason of the expiration of the five year period will be stayed. Since the applicant has waived his patent rights and agreed to a defensive publication, termination of interference proceedings in his favor would render the express abandonment ineffective but would not result in the issuance of an enforceable patent. Instead, a normal Notice of Allowance would be issued except that the applicant would be notified that when the issue fee is remitted a disclaimer of the entire term of the patent to be granted in accordance with the second paragraph of 35 U.S.C. 253 should be included.

No special fees will be required for entrance into this program. The applicant will be permitted to include with his request a replacement or expanded abstract of the technical disclosure of up to two hundred (200) words. Acceptance of a request to enter this program will be contingent upon screening by the Patent Office to exclude such material that may be considered advertising, frivolous, scandalous, against public policy, subject to national security controls, etc. Acceptance of a designated application in this program is not intended to preclude the examination of any continuing application filed under 35 U.S.C. 120 within thirty (30) months after the earliest effective U.S. filing date of the designated application.

Upon receipt and approval of the request the application abstract will be published in the OFFICIAL GAZETTE. Publication of the abstract in the OFFICIAL GAZETTE would be in a separate section identifying the application as being open for inspection by the general public and indicating that it is subject to the New Defensive Publication Program.

Following publication the application would be filed in the Record Section of the Patent Reference Branch where it will be available for inspection upon written request. Copies of the application will be furnished by the Patent Office upon request and payment of fee. The application abstract and suitable drawing copies would then be made a part of the official search files.

After the defensive publication has appeared in the OFFICIAL GAZETTE the abstract and suitable drawing copies will be available as prior art from the date of publication under 35 U.S.C. 102(a) or 102(b) as a printed publication. Also, at this time the application will be available as prior art under 35 U.S.C. 102(a) as evidence of prior knowledge from the actual date of filing the application in the Patent Office.

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EDWARD J. BRENNER,
Commissioner of Patents.

Approved: Apr. 9, 1968.
JOHN F. KINCAID,
Assistant Secretary for Science and Technology.

Published in 33 F.R. 5623; Apr. 11, 1968

[849 O.G. 1221]

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(187) DEFENSIVE PUBLICATION PROGRAM

The open season of the New Defensive Publication Program, originally announced in the OFFICIAL GAZETTE of May 7, 1968 (850 O.G. 1) as terminating November 1, 1968, is hereby extended. Accordingly, until January 1, 1969, this program will be open for any pending application awaiting first action by the Patent Office at the time of the request without regard to the filing date of that application.

As originally announced this program will continue to be open until further notice to any applicant having an application awaiting action by the Patent Office and who files a written request no later than eight (8) months after the earliest U.S. effective filing date of the designated application.

RICHARD A. WAHL,
Oct. 1, 1968. *Assistant Commissioner.*

[855 O.G. 1109]

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(188) DEFENSIVE PUBLICATION PROGRAM

The notice of October 1, 1968 (855 O.G. 1109) which extended the open season of the New Defensive Publication Program until January 1, 1969, is herby modified to further extend the open season indefinitely. Accordingly, until further notice any patent application which has not been given a first action may be entered in the Defensive Publication Program.

RICHARD A. WAHL,
Dec. 20, 1968. *Assistant Commissioner.*

[858 O.G. 687]

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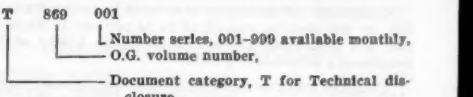
(189) DEFENSIVE PUBLICATION PROGRAM

1. To resolve certain inherent publication and reference problems, and to establish and treat Defensive Publication. Applications (notices published in 33 F.R. 5623, April 11, 1968, and O.G. 1221, April 30, 1968) in the same manner as patents, the following changes are being made:

a. Publication is to be weekly beginning with 869 O.G. No. 3, December 16, 1969, and

b. Distinct numbers are to be assigned per example:



2. Defensive Publications will continue to be included in sub-class lists and subscription orders. The new number will be used for all official reference and document copy requirements.

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RICHARD A. WAHL,
Nov. 21, 1969. *Assistant Commissioner.*

[869 O.G. 687]

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(190) PATENT PRINTING PRIORITY

In view of the backlog of allowed cases waiting to be printed, the applications placed in the weekly formulation of an issue set aside for printing will be selected according to the following priorities:

1. Allowed cases which were made special by the Commissioner (including those under the New Special Examining Procedure).
2. Allowed cases that are more than five years old.
3. Allowed reissue applications.
4. Allowed applications having an effective filing date earlier than that required for declaring an interference with a copending application claiming the same subject matter.
5. Allowed application of a party involved in a terminated interference.
6. Allowed applications in which the applicant has filed a request in the nature of a petition setting forth his reasons for advancing the printing date.
7. Allowed applications ready for printing and not covered by any of the six preceding categories. The selection of cases in the involved category will be by chronological sequence based on the date the issue fee was paid.

To ensure that any application falling within the scope of the categories outlined above and identified by numbers 1 to 5 receives special treatment the Examiners should staple on the file wrapper a tag entitled "Special in Issue and Gazette Branch." The special tag, PO–364, may be obained from the Group Clerk. The Examiner shall print directly on the tag the recitation "In Issue and Gazette Branch" and the appropriate printing category outlined above. The application is then forwarded to Issue and Gazette Branch in accordance with existing procedures.

The personnel in Issue and Gazette Branch will then set the tagged cases aside and make a notation on all copies of the Notice of Allowance to be mailed that further processing of this application will be "special."

In cases falling in category No. 6, the request must be filed after the Notice of Allowance has been received and no later than the date the issue fee is paid. The request must be directed to the Head of the Issue and Gazette Branch.

RICHARD A. WAHL,
Nov. 29, 1968. *Assistant Commissioner.*

[857 O.G. 1327]

(191) TITLE 37—PATENTS, TRADEMARKS, AND COPYRIGHTS

CHAPTER I—PATENT OFFICE, DEPARTMENT OF COMMERCE

SUBCHAPTER A—GENERAL

SUBCHAPTER B—GOVERNMENT INVENTIONS JURISDICTION

EDITORIAL NOTE: Chapter I of Title 37 of the Code of Federal Regulations is changed by designating the existing text as Subchapter A—General, and inserting a new Subchapter B—Government Inventions Jurisdiction, containing former Parts 300, 301, and 302 which are transferred from Chapter III of this title and redesignated as follows:

Part
100 Administration of a uniform patent policy with respect to the domestic rights in inventions made by Government employees.
101 Acquisition and protection of foreign rights in inventions.
102 Licensing of foreign patents acquired by the Government.

Accordingly, all references to sections in former Parts 300, 301, or 302 shall be deemed to be to sections in Parts 100, 101, and 102. Thus, a reference to former § 300.1 shall be considered a reference to § 100.1.

CHAPTER III—GOVERNMENT INVENTIONS JURISDICTION, PATENT OFFICE, DEPARTMENT OF COMMERCE

TRANSFER OF REGULATIONS

The text of Chapter III of Title 37 of the Code of Federal Regulations is transferred to Chapter I of this title as Subchapter B—Government Inventions Jurisdiction. Former Parts 300, 301, and 302 are redesignated Parts 100, 101, and 102 respectively.

Published in 34 F.R. 20383, Dec. 31, 1969

[870 O.G. 1039]

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(192) DELAY IN ISSUANCE OF PATENTS

On June 9 and June 16, 1970, only reissue patents, design patents, and trademark registrations will be issued due to circumstances involving the printing of patent specifications.

Delays may occur in filling orders for newly issued patents.

WILLIAM E. SCHUYLER, JR.,
May 21, 1970. *Commissioner of Patents.*

[875 O.G. 327]

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(193) PATENT FRONT PAGE FORMAT

August 4, 1970 marks the inauguration of certain changes and innovations in the form and method of producing printed copies of patents. Nearly 100 patents in this issue were electrophotographically composed for printing as part of a comprehensive system for developing and utilizing a patent full-text library in computer processable form. Numbers of patents produced in this manner are scheduled to increase until *all* patents enter the machineable data base.

Patents produced by this new system are distinguishable in appearance from all others in the following respects:

(a) Front page

The first sheet of each patent presents an arrangement of the applicable bibliographic type of data elements which are itemized and discussed elsewhere; an abstract of the disclosure (or a claim when no abstract is available); and, a reduced reproduction of a representative drawing figure when the patent contains any drawings.

(b) Other changes

With identification of the patent appearing on the front page, the title of the invention and the name of the inventor will no longer be printed in the heading of drawings. The patent number, date of issuance, and sheet-of-sheets information will continue to be printed on the drawings.

All of the bibliographic type of data and the abstract which previously appeared on sheets containing text matter are removed from such pages and consolidated on the front page.

Data elements presented on the front page are accompanied by a number which appears in brackets.

The numbers are data element identifiers which have been adopted internationally for use on patents and published applications to facilitate the worldwide use of such documents as set forth below:

[11] Patent number
[21] Application number
[22] Filing date
[31] Application number (of a Convention priority application)
[32] Filing date (of Convention priority application)
[33] Country in which the Convention priority application was filed
[45] Date of Patent issue: followed by terminal disclaimer, if any
[51] International Patent Classification: basic classification in bold face type; other in light face
[52] U.S. Classification: Original class and subclass in bold face type; cross-references in light face
[54] Title of the invention: Followed by the number of claims and drawing figures
[56] References cited: List of prior art documents cited by the examiner, arranged in the following categories:
United States Patents
Foreign Patents or Applications
Other Publications
[60] Related U.S. Applications:
[62] Due to Division(s)
[63] Due to Continuation(s)
[64] Due to reissue(s)
[72] Name(s) of the Inventor(s)
[73] Assignee(s)
[*] Field of Search: Subclasses recorded on the file wrapper as searched by the examiner
[*] Primary Examiner: The person responsible for review of the patent allowance or who, in addition, examined and allowed the patent application
[*] Assistant Examiner: the person who examined and allowed the patent application, other than a primary examiner
[*] Attorney: the principal attorney of record at the time the allowed application was prepared for patent printing
[*] Abstract

Element numbers have not been assigned to the items denoted by the sign [*].

For earlier information respecting the front page format and date entries, reference is made to the notice published in the OFFICIAL GAZETTE of March 11, 1969 (860 O.G. 336–7).

WILLIAM E. SCHUYLER, JR.,
July 16, 1970. *Commissioner of Patents.*

[877 O.G. 1]

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(194) CHANGES IN PATENT FRONT PAGE

Changes in the front page format of patents inaugurated August 4, 1970 will become effective with the issue of patents on January 18, 1972. They relate mainly to the sequence and grouping of data items and to various features of typography. The revised format is illustrated in a specimen which appears below.

Data elements presented on the front page are accompanied by a number which appears in brackets. They are the "ICIREPAT Numbers for Identification of Data" (INID) which have been adopted internationally for use on patents and published applications to facilitate the use of such documents.

The definitions of INID numbers for data elements which appear in U.S. patents are set forth below:

[15] "Number of an examined patent, inventor's certificate or like granted or approved document."
[21] "Number as assigned to the application. . . ."
[22] "Date(s) of filing of application(s)."
[30] "Convention priority data."
The separate elements comprising such data—i.e., application number, filing date, and country—are not individually coded on U.C. patents. Only the generic INID number is used.
[45] "Date of publication by printing or similar process of a patent or like approved document."
[51] "International Patent Classification (preferably preceded by "Int. Cl.")."

[52] "Domestic or national classification."
[54] "Title of the invention."
[56] "List of prior art documents, if separate from the text of the document."
[57] "Abstract or claim."
[58] "Field of search."
[60] "Reference to other applications filed or documents issued in the same country, to which the document is legally related."

This generic INID number is used when the relationship of the patent to other applications is due both to [62] division and [63] continuation.

[62] "Reference to other applications filed or documents issued in the same country, to which the document is legally related: Relation due to division(s)."
[63] "Reference to other applications filed or documents issued in the same country, to which the document is legally related: Relation due to continuation(s)."
[72] "Name(s) of inventor(s) if known to be such."
[73] "Name of grantee(s) if other than applicant or inventor."

Dec. 21, 1971.

R. J. RISH,
Acting Assistant Commissioner for Administration.

SPECIMEN

United States Patent

Clark et al.

[15] **3,624,090**

[45] **Nov. 30, 1971**

[54] PREPARATION OF PYRIDINE

[72] Inventors: **Duncan Clark**, Norton-on-Tees; **Percy Hayden**, Norton-on-Tees; **Alan Bell**, Runcorn; **John Edward Colchester**, Runcorn, all of England

[73] Assignee: **Imperial Chemical Industries Limited**, London, England

[22] Filed: Apr. 7, 1969

[21] Appl. No: 817,251

Related U.S. Application Data

[60] Continuation-in-part of Ser. No. 669,733, Sept. 22, 1967, abandoned, which is a division of Ser. No. 493,231, Oct. 5, 1965, abandoned.

[30] **Foreign Application Priority Data**

Apr. 7, 1965 Great Britain 14,778/65

[52] U.S. Cl. ..... 260/83.7 R, 252/431, 260/94.2 M
[51] Int. Cl. C08d 1/32, C08f 1/56, C08f 15/04
[58] Field of Search ..... 260/94.2 M, 83.7, 665; 252/431, 431 P

[56] **References Cited**

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3,372,128	3/1968	Maeda et al.	260/604
3,177,257	4/1965	Detling et al.	260/604

FOREIGN PATENTS OR APPLICATIONS

878,802	10/1961	Great Britain	260/530 U
999,836	7/1965	Great Britain	260/530 U
903,034	8/1962	Great Britain	260/533

OTHER PUBLICATIONS

Dandegaonker et al. Monatsh. Chem. Vol. 96, No. 2; pages 614–624 (1965) Q 1.M73
Jerchel et al. Liebig's Ann. Chem. Vol. 575, pages 162–173 (1952). QD1.L7
Rao et al. Chem Abst. Vol. 53, columns 18012–3 (1959) QD1.A51.

Primary Examiner—Henry R. Jiles
Assistant Examiner—Cecilia M. Shurko
Attorney—Cushman, Darby & Cushman

[57] **ABSTRACT**

There is provided a process for preparing pyridine wherein substituted or unsubstituted glutaraldehydes or precursors thereof are reacted in the liquid phase with ammonium ions in the presence of molecular oxygen and cupric ions and in a medium comprising an alkanoic acid. The alkanoic acid preferably has up to 6 carbon atoms in the alkyl group, such as acetic acid. The cupric ions may be supplied in the form of a salt such as cupric acetate. Conveniently, the reaction temperature is up to 150° C. and the partial pressure of oxygen is at least 0.5 atmospheres.

10 Claims, No Drawings

[894 O.G. 464]

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(195) PRINTING PRACTITIONER'S NAMES ON PATENTS

On September 8, 1972 (903 O.G. 369), the Patent Office requested comments on a proposal regarding the printing of a firm name or the names of individual practitioners on the patent, as indicated by the applicant at the time the issue fee is paid. The comments received indicated strong support for the proposed procedure.

In view of these comments, the Patent Office has adopted the following revised procedure for printing a firm name, the names of up to three registered patent practitioners, or no practitioner's name on the patent.

The Notice of Allowance form, POL–85, has been redesigned in part to provide a space on POL–85b, the Base Issue Fee Transmittal form, for the person submitting the base issue fee to indicate, for printing, the names of up to three registered patent attorneys and agents or, alternatively, the name of a single firm which has as a member at least one registered patent attorney or agent. If the person submitting the base issue fee desires that no practitioner's name be printed on the patent, the space provided on the revised Base Issue Fee Transmittal form should be left blank. If no name is given, no name will be printed.

The adoption of this new procedure is intended to solve various problems encountered since the practice of recognizing firms was discontinued. While some slight additional effort on the part of the attorney or agent is thus involved if he desires to have a printed entry on the patent, the following advantages are provided by the new procedure: (1) it permits printing firm names on patents even though firms are no longer registered with or recognized by the Patent Office in new application; (2) it allows the names of those individuals who actually performed the work of preparing and prosecuting the application to appear on the printed patent; and (3) it grants an attorney or agent the option of not having his name appear on the printed patent.

The revised form POL–85 will be placed in use as soon as a supply of the form is received from the printer. Thereafter, the new practice, as indicated above, will be followed in patent printing as the Base Issue Fee Transmittal Portion of that form (POL–85b) is received.

Aug. 3, 1973.

RENE D. TEGTMEYER,
Acting Commissioner of Patents.

[913 O.G. 1042]

(196) DISCLOSURE DOCUMENT PROGRAM

This notice consolidates and supersedes the notices of Mar. 26, 1969 (862 O.G. 1) and Aug. 11, 1970 (878 O.G. 1) relating to the Patent Office Disclosure Document Program.

Under this program the Patent Office accepts and preserves, for a period of two years, papers referred to as "Disclosure Documents." These papers may be used as evidence of the dates of conception of inventions.

THE PROGRAM

A paper disclosing an invention and signed by the inventor or inventors may be forwarded to the Patent Office by the inventor (or by any one of the inventors when there are joint inventors), by the owner of the invention, or by the attorney or agent of the inventor(s) or owner. It will be retained for two years and then be destroyed unless it is referred to in a separate letter in a related patent application within said two years.

A Disclosure Document is not a patent application and the date of its receipt in the Patent Office will not become the effective filing date of any patent application subsequently filed. However, like patent applications, these documents will be kept in confidence by the Patent Office. If patent protection is desired, a patent application should be filed as soon as possible.

This program does not diminish the value of conventional witnessed and notarized records as evidence of conception of an invention, but it should provide a more credible form of evidence than that provided by the popular practice of mailing a disclosure to oneself or another person by registered mail. The program is made available as a service to those persons desiring to use it.

CONTENT OF DISCLOSURE DOCUMENT

Although there are no restrictions as to content and claims are not necessary, the benefits afforded by a Disclosure Document will depend directly upon the adequacy of the disclosure. Therefore, it is strongly urged that the document contain a clear and complete explanation of the manner and process of making and using the invention in sufficient detail to enable a person having ordinary knowledge in the field of the invention to make and use the invention. When the nature of the invention permits, a drawing or sketch should be included. The use or utility of the invention should be described, especially in chemical inventions.

The Disclosure Document must be limited to written matter or drawings on paper or other thin, flexible material, such as linen or plastic drafting material, having dimensions or being folded to dimensions not to exceed 8½ by 13 inches. Photographs also are acceptable. Each page should be numbered. Text and drawings should be sufficiently dark to permit reproduction with commonly used office copying machines.

A $10 fee is charged for filing a Disclosure Document. Payment must accompany the Disclosure Document when it is submitted to the Patent Office.

In addition to the $10 fee, the Disclosure Document must be accompanied by a stamped, self-addressed envelope and a separate paper in duplicate, signed by the inventor, stating that he is the inventor and requesting that the material be received for processing under the Disclosure Document Program. The papers will be stamped by the Patent Office with an identifying number and date of receipt, and the duplicate request will be returned in the self-addressed envelope together with a warning notice indicating that the Disclosure Document may be relied upon only as evidence and that a patent application should be diligently filed if patent protection is desired. The inventor's request may take the following form:

"The undersigned, being the inventor of the disclosed invention, requests that the enclosed papers be accepted under the Disclosure Document Program, and that they be preserved for a period of two years."

RETENTION

The Disclosure Document will be preserved in the Patent Office for two years after its receipt and will then be destroyed unless it is referred to in a separate letter in a related patent application filed within the two-year period. The Disclosure Document must be referred to in the separate letter by title, number, and date of receipt. Acknowledgment of receipt of such letters will be made in the next official communication or in separate letter from the Patent Office. Unless it is desired to have the Patent Office retain the Disclosure Document beyond the two-year period, it is not required that it be referred to in a patent application.

WARNING AS TO LIMITATIONS

The two-year retention period should not be considered to be a "grace period" during which the inventor can wait to file his patent application without possible loss of benefits. It should be recognized that in establishing priority of invention an affidavit or testimony referring to a Disclosure Document must usually also establish diligence in completing the invention or in filing the patent application since the filing of the Disclosure Document.

Inventors are also reminded that any public use or sale in the United States, or publication of the invention anywhere in the world, more than one year prior to the filing of a patent application on that invention will prohibit the granting of a patent on that invention.

If the inventor is not familiar with what is considered to be "diligence in completing the invention" or "reduction to practice" under the patent law, or if he has other questions about patent matters, the Patent Office advises him to consult an attorney or agent registered to practice before the Patent Office. Patent attorneys and agents may be found in the telephone directories of most major cities. Also, many large cities have associations of patent attorneys which may be consulted.

RICHARD A. WAHL,
Jan. 4, 1971. *Assistant Commissioner of Patents.*

[883 O.G. 3]

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(197) SUPPLEMENTAL TO THE MANUAL OF CLASSIFICATION

Over a span of years, Patent Examiners have created "unofficial" subclasses and digests to facilitate searches within the arts under their jurisdiction. A recent inventory of the unofficial U.S. patents in the Examiner search file (exclusive of designs) has enabled the issuance of a listing of unofficial subclasses and digests as a supplement to the Manual of Classification.

Current subscribers to the Manual of Classification shall receive the Supplement as soon as it becomes available (Sept.–Oct. '71), at a cost to be included in a forthcoming renewal fee. New subscriptions shall include the Supplement at a slightly higher cost.

It should be noted that the Supplement is intended only as an interim publication until such time as the Manual of Classification can be completely reprinted with the unofficial subclasses and digests shown in their proper relationship to respective official classes and subclasses. The reprinted Manual, in the described integrated format, shall be derived from computer stored data now in the process of being compiled and should be available by mid-1972.

WILLIAM R. NUGENT,
July 27, 1971. *Assistant Commissioner.*

[889 O.G. 1064]

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(198) PRESIDENTIAL DOCUMENTS, TITLE 3—THE PRESIDENT

MEMORANDUM OF AUGUST 23, 1971

GOVERNMENT PATENT POLICY

Memorandum for Heads of Executive Departments and Agencies

THE WHITE HOUSE,
Washington, August 23, 1971.

On October 10, 1963, President Kennedy forwarded to the Heads of Executive Departments and Agencies a Memorandum

and Statement of Government Patent Policy for their guidance in determining the disposition of rights to inventions made under Government-sponsored grants and contracts. On the basis of the knowledge and experience then available, this Statement first established Government-wide objectives and criteria, within existing legislative constraints, for the allocation of rights to inventions between the Government and its contractors.

It was recognized that actual experience under the Policy could indicate the need for revision or modification. Accordingly, a Patent Advisory Panel was established under the Federal Council for Science and Technology for the purpose of assisting the agencies in implementing the Policy, acquiring data on the agencies' operations under the Policy, and making recommendations regarding the utilization of Government-owned patents. In December 1965, the Federal Council established the Committee on Government Patent Policy to assess how this Policy was working in practice, and to acquire and analyze additional information that could contribute to the reaffirmation or modification of the Policy.

The efforts of both the Committee and the Panel have provided increased knowledge of the effects of Government patent policy on the public interest. More specifically, the studies and experience over the past 7 years have indicated that:

(a) A single presumption of ownership of patent rights to Government-sponsored inventions either in the Government or in its contractors is not a satisfactory basis for Government patent policy, and that a flexible, Government-wide policy best serves the public interest;

(b) The commercial utilization of Government-sponsored inventions, the participation of industry in Government research and development programs, and commercial competition can be influenced by the following factors: the mission of the contracting agency; the purpose and nature of the contract; the commercial applicability and market potential of the invention; the extent to which the invention is developed by the contracting agency; the promotional activities of the contracting agency; the commercial orientation of the contractor and the extent of his privately financed research in the related technology; and the size, nature and research orientation of the pertinent industry;

(c) In general, the above factors are reflected in the basic principles of the 1963 Presidential Policy Statement.

Based on the results of the studies and experience gained under the 1963 Policy Statement certain improvements in the Policy have been recommended which would provide (1) agency heads with additional authority to permit contractors to obtain greater rights to inventions where necessary to achieve utilization or where equitable circumstances would justify such allocation of rights, (2) additional guidance to the agencies in promoting the utilization of Government-sponsored inventions, (3) clarification of the rights of States and municipal governments in inventions in which the Federal Government acquires a license, and (4) a more definitive data base for evaluating the administration and effectiveness of the Policy and the feasibility and desirability of further refinement or modification of the Policy.

I have approved the above recommendations and have attached a revised Statement of Government Patent Policy for your guidance. As with the 1963 Policy Statement, the Federal Council shall make a continuing effort to record, monitor and evaluate the effects of this Policy Statement. A Committee on Government Patent Policy, operating under the aegis of the Federal Council for Science and Technology, shall assist the Federal Council in these matters.

This memorandum and statement of policy shall be published in the Federal Register.

RICHARD NIXON.

STATEMENT OF GOVERNMENT PATENT POLICY

BASIC CONSIDERATIONS

A. The Government expends large sums for the conduct of research and development which results in a considerable number of inventions and discoveries.

B. The inventions in scientific and technological fields resulting from work performed under Government contracts constitute a valuable national resource.

C. The use and practice of these inventions and discoveries should stimulate inventors, meet the needs of the Government, recognize the equities of the contractor, and serve the public interest.

D. The public interest in a dynamic and efficient economy requires that efforts be made to encourage the expeditious development and civilian use of these inventions. Both the need for incentives to draw forth private initiatives to this end, and the need to promote healthy competition in industry must be weighed in the disposition of patent rights under Government contracts. Where exclusive rights are acquired by the contractor, he remains subject to the provisions of the antitrust laws.

E. The public interest is also served by sharing of benefits of Government-financed research and development with foreign countries to a degree consistent with our international programs and with the objectives of U.S. Foreign policy.

F. There is growing importance attaching to the acquisition of foreign patent rights in furtherance of the interests of U.S. industry and the Government.

G. The prudent administration of Government research and development calls for a Government-wide policy on the disposition of inventions made under Government contracts reflecting common principles and objectives, to the extent consistent with the missions of the respective agencies. The policy must recognize the need for flexibility to accommodate special situations.

POLICY

SECTION 1. The following basic policy is established for all Government agencies with respect to inventions or discoveries made in the course of or under any contract of any Government agency, subject to specific statutes governing the disposition of patent rights of certain Government agencies.

(a) Where

(1) a principal purpose of the contract is to create, develop or improve products, processes, or methods which are intended for commercial use (or which are otherwise intended to be made available for use) by the general public at home or abroad, or which will be required for such use by governmental regulations; or

(2) a principal purpose of the contract is for exploration into fields which directly concern the public health, public safety, or public welfare; or

(3) the contract is in a field of science or technology in which there has been little significant experience outside of work funded by the Government, or where the Government has been the principal developer of the field, and the acquisition of exclusive rights at the time of contracting might confer on the contractor a preferred or dominant position; or

(4) the services of the contractor are

(i) for the operation of a Government-owned research or production facility; or

(ii) for coordinating and directing the work of others,

the Government shall normally acquire or reserve the right to acquire the principal or exclusive rights throughout the world in and to any inventions made in the course of or under the contract.

In exceptional circumstances the contractor may acquire greater rights than a nonexclusive license at the time of contracting where the head of the department or agency certifies that such action will best serve the public interest. Greater rights may also be acquired by the contractor after the invention has been identified where the head of the department or agency determines that the acquisition of such greater rights is consistent with the intent of this Section 1(a) and is either a necessary incentive to call forth private risk capital and expense to bring the invention to the point of practical application or that the Government's contribution to the invention is small compared to that of the contractor. Where an identified invention made in the course of or under the contract is not a primary object of the contract, greater rights may also be acquired by the contractor under the criteria of Section 1(c).

(b) In other situations, where the purpose of the contract is to build upon existing knowledge or technology, to develop information, products, processes, or methods for use by the

Government, and the work called for by the contract is in a field of Technology in which the contractor has acquired technical competence (demonstrated by factors such as know-how, experience, and patent position) directly related to an area in which the contractor has an established nongovernmental commercial position, the contractor shall normally acquire the principal or exclusive rights throughout the world in and to any resulting inventions.

(c) Where the commercial interests of the contractor are not sufficiently established to be covered by the criteria specified in Section 1(b) above, the determination of rights shall be made by the agency after the invention has been identified, in a manner deemed most likely to serve the public interest as expressed in this policy statement, taking particularly into account the intentions of the contractor to bring the invention to the point of commercial application and the guidelines of Section 1(a) hereof, provided that the agency may prescribe by regulation special situations where the public interest in the availability of the inventions would best be served by permitting the contractor to acquire at the time of contracting greater rights than a nonexclusive license.

(d) In the situations specified in Sections 1(b) and 1(c), when two or more potential contractors are judged to have presented proposals of equivalent merit, willingness to grant the Government principal or exclusive rights in resulting inventions will be an additional factor in the evaluation of the proposals.

(e) Where the principal or exclusive rights in an invention remain in the contractor, he should agree to provide written reports at reasonable intervals, when requested by the Government, on the commercial use that is being made or is intended to be made of inventions made under Governmental contracts.

(f) Where the principal or exclusive rights in an invention remain in the contractor, unless the contractor, his licensee, or his assignee has taken effective steps within three years after a patent issues on the invention to bring the invention to the point of practical application or has made the invention available for licensing royalty-free or on terms that are reasonable in the circumstances, or can show cause why he should retain the principal or exclusive rights for a further period of time, the Government shall have the right to require the granting of a nonexclusive or exclusive license to a responsible applicant(s) on terms that are reasonable under the circumstances.

(g) Where the principal or exclusive rights to an invention are acquired by the contractor, the Government shall have the right to require the granting of a nonexclusive or exclusive license to a responsible applicant(s) on terms that are reasonable in the circumstances (i) to the extent that the invention is required for public use by governmental regulations, or (ii) as may be necessary to fulfill health or safety needs, or (iii) for other public purposes stipulated in the contract.

(h) Whenever the principal or exclusive rights in an invention remain in the contractor, the Government shall normally acquire, in addition to the rights set forth in Sections 1(e), 1(f), and 1(g),

(1) at least a nonexclusive, nontransferable, paid-up license to make, use, and sell the invention throughout the world by or on behalf of the Government of the United States (including any Government agency) and States and domestic municipal governments, unless the agency head determines that it would not be in the public interest to acquire the license for the States and domestic municipal governments; and

(2) the right to sublicense any foreign government pursuant to any existing or future treaty or agreement if the agency head determines it would be in the national interest to acquire this right; and

(3) the principal or exclusive rights to the invention in any country in which the contractor does not elect to secure a patent.

(i) Whenever the principal or exclusive rights in an invention are acquired by the Government, there may be reserved to the contractor a revocable or irrevocable nonexclusive royalty-free license for the practice of the invention throughout the world; an agency may reserve the right to revoke such license so that it might grant an exclusive license when it determines that some degree of exclusivity may be necessary to encourage further development and commercialization of the invention. Where the Government has a right to acquire the principal or exclusive rights to an invention and does not elect to secure a patent in a foreign country, the Government may permit the contractor to acquire such rights in any foreign country in which he elects to secure a patent, subject to the Government's rights set forth in Section 1(h).

SEC. 2. Under regulations prescribed by the Administrator of General Services, Government-owned patents shall be made available and the technological advances covered thereby brought into being in the shortest time possible through dedication or licensing, either exclusive or non-exclusive, and shall be listed in official Government publications or otherwise.

SEC. 3. The Federal Council for Science and Technology in consultation with the Department of Justice shall prepare at least annually a report concerning the effectiveness of this policy, including recommendations for revision or modification as necessary in light of the practices and determinations of the agencies in the disposition of patent rights under their contracts. The Federal Council for Science and Technology shall continue to

(a) develop by mutual consultation and coordination with the agencies common guidelines for the implementation of this policy, consistent with existing statutes, and to provide overall guidance as to disposition of inventions and patents in which the Government has any right or interest; and

(b) acquire data from the Government agencies on the disposition of patent rights to inventions resulting from federally financed research and development and on the use and practice of such inventions to serve as bases for policy review and development; and

(c) make recommendations for advancing the use and exploitation of Government-owned domestic and foreign patents.

Each agency shall record the basis for its actions with respect to inventions and appropriate contracts under this statement.

SEC. 4. Definitions: As used in this policy statement, the stated terms in singular and plural are defined as follows for the purposes hereof:

(a) *Government agency*—includes any executive department, independent commission, board, office, agency, administration, authority, Government corporation, or other Government establishment of the executive branch of the Government of the United States of America.

(b) *States*—means the States of the United States, the District of Columbia, Puerto Rico, the Virgin Islands, American Samoa, Guam and the Trust Territory of the Pacific Islands.

(c) *Invention, or Invention or discovery*—includes any art, machine, manufacture, design, or composition of matter, or any new and useful improvement thereof, or any variety of plant, which is or may be patentable under the Patent Laws of the United States of America or any foreign country.

(d) *Contractor*—means any individual, partnership, public or private corporation, association, institution, or other entity which is a party to the contract.

(e) *Contract*—means any actual or proposed contract, agreement, grant, or other arrangement, or subcontract entered into with or for the benefit of the Government where a purpose of the contract is the conduct of experimental, developmental, or research work.

(f) *Made*—when used in relation to any invention or discovery means the conception or first actual reduction to practice of such invention in the course of or under the contract.

(g) *To the point of practical application*—means to manufacture in the case of a composition or product, to practice in the case of a process, or to operate in the case of a machine and under such conditions as to establish that the invention is being worked and that its benefits are reasonably accessible to the public.

[FR Doc. 71-12623; Filed 8-25-71; 10:41 a.m.]

36 F.R. 16887-16892; Aug. 26, 1971

[890 O.G. 1302]

(199) PUBLIC LAW 92-132

[92nd Congress, S. 1253]

October 5, 1971

AN ACT

85 Stat. 364

To amend section 6 of title 35, United States Code, "Patents," to authorize domestic and international studies and programs relating to patents and trademarks.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That section 6 of title 35, United States Code, is amended to read as follows:

Patents, trademarks. International programs, U.S. participation. 66 Stat. 793.

"§ 6. *Duties of Commissioner*

"(a) The Commissioner, under the direction of the Secretary of Commerce, shall superintend or perform all duties required by law respecting the granting and issuing of patents and the registration of trademarks; shall have the authority to carry on studies and programs regarding domestic and international patent and trademark law; and shall have charge of property belonging to the Patent Office. He may, subject to the approval of the Secretary of Commerce, establish regulations, not inconsistent with law, for the conduct of proceedings in the Patent Office.

"(b) The Commissioner, under the direction of the Secretary of Commerce, may, in coordination with the Department of State, carry on programs and studies cooperatively with foreign patent offices and international intergovernmental organizations, or may authorize such programs and studies to be carried on, in connection with the performance of duties stated in subsection (a) of this section.

Transfer of funds.

"(c) The Commissioner, under the direction of the Secretary of Commerce, may, with the concurrence of the Secretary of State, transfer funds appropriated to the Patent Office, not to exceed $100,000 in any year, to the Department of State for the purpose of making special payments to international intergovernmental organizations for studies and programs for advancing international cooperation concerning patents, trademarks, and related matters. These special payments may be in addition to any other payments or contributions to the international organization and shall not be subject to any limitations imposed by law on the amounts of such other payments or contributions by the Government of the United States."

Approved October 5, 1971.

LEGISLATIVE HISTORY:

HOUSE REPORT No. 92-475 (Comm. on the Judiciary).
SENATE REPORT No. 92-71 (Comm. on the Judiciary).
CONGRESSIONAL RECORD, Vol. 117 (1971):
Apr. 22, considered and passed Senate.
Sept. 28, considered and passed House.

[892 O.G. 1600]

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(200) NUMBERS FOR WHICH NO PATENTS HAVE ISSUED

The Calendar Year 1970 Index of Patents will be available from the Superintendent of Documents, Government Printing Office in the very near future. Beginning with this year's Index, Part II "Subjects of Inventions" will list each patent number for which no patent was issued during the year. The 1970 Index will also include all the patent numbers for the years 1920 through 1969 for which no patents issued.

ROBERT J. RISH,
Dec. 13, 1971. *Acting Assistant Commissioner for Administration.*

[894 O.G. 464]

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(201) NOTICE TO OFFICIAL GAZETTE SUBSCRIBERS

It has come to the attention of the Patent Office that some subcribers to the OFFICIAL GAZETTE have not been receiving all of their copies of the patent and/or trademark sections of the OFFICIAL GAZETTE. Several of the incidents brought to our attention involved situations where subscribers had recently renewed their subscriptions.

This matter was brought to the attention of the Superintendent of Documents who advised us that subscribers to the OFFICIAL GAZETTE are notified approximately 3 months in advance that their subscriptions are about to expire. It was indicated that if these notices are promptly utilized to renew subscriptions, no difficulties will arise.

However, in order to facilitate the resolution of any problems which may arise concerning subscriptions to the OFFICIAL GAZETTE, an official liaison has been established between the Patent Office and the Superintendent of Documents. Under this arrangement, any person experiencing difficulties in obtaining copies of the OFFICIAL GAZETTE should contact Robert Rish, Director, Office of Public Services, U.S. Patent Office, Washington, D.C., 20231. All such inquiries will be given prompt attention.

ROBERT GOTTSCHALK,
Apr. 18, 1972. *Commissioner of Patents.*

[898 O.G. 738]

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(202) NEW SALES PRICES FOR OFFICIAL GAZETTE

The U.S. Government Printing Office recently announced changes in the sales prices for copies of the OFFICIAL GAZETTE of the U.S. Patent Office. The new scale is effective January 1, 1974.

OFFICIAL GAZETTE—Patents:	
Subscription price	$211.00
Add for foreign mailing	52.75
Single copy price	4.10
OFFICIAL GAZETTE—Trademarks:	
Subscription price	$ 60.25
Add for foreign mailing	15.10
Single copy price	1.25

RENE D. TEGTMEYER,
Nov. 7, 1973. *Acting Commissioner of Patents.*

[916 O.G. 805]

(203) LEGAL JOURNALS

[37 CFR Parts 1, 2]

Withdrawal of Proposed Rule Making Regarding Placing of Announcements

Under date of May 11, 1972, 37 FR 9488 (FR Doc. 72–7160), notice of proposed rule making was given concerning a proposed revision of §§ 1.345(b) and 2.14(b) of Title 37 of the Code of Federal Regulations. The purpose of the proposed revision was to permit persons practicing before the Patent Office to place in legal journals announcements of their availability to act as consultants to or as associates of other lawyers in patent or trademark practice. After careful consideration of all of the comments received on the proposed revision, it has been determined that the proposed revision will not be made at this time and, accordingly, the notice of proposed rule making is canceled and withdrawn.

Dated: Jan. 29, 1973.

ROBERT GOTTSCHALK,
Commissioner of Patents.

Approved: Jan. 29, 1973.

RICHARD O. SIMPSON,
Acting Assistant Secretary for Science and Technology.

[FR Doc. 73–3097; Filed 2–15–73; 8:45 am]

Published in 38 F.R. 32; Feb. 16, 1973

[908 O.G. 784]

(204) SOLICITATION OF PUBLIC VIEWS CONCERNING CHANGES IN PATENT OFFICE PRACTICES AND PROCEDURES

In the effort to continually improve operations and to respond to changing circumstances, the procedures and practices of the Patent Office are revised from time to time. While comments are requested and public hearings held on proposed changes in the Rules of Practice, changes in other practices and procedures of the Office have generally been implemented on the basis of informal and more limited liaison with our constituents. This has, on occasion, given rise to inquiries as to the reasons for and wisdom of certain of these changes, as well as to criticisms and proposals for further changes.

While all changes in procedure must take into consideration the efficient operation of the Patent Office, we have determined that on a trial basis, we will, where appropriate, solicit views and comments of the patent community so that they might be taken into account in shaping the procedures of the Patent Office. The solicitation of such views will focus primarily on proposed changes in practices and procedures of the Office which have substantial impact on individuals dealing with the Patent Office. Our first such effort involves the question of whether claims or abstracts are more appropriate for publication in the OFFICIAL GAZETTE, and this is the subject of a separate notice in this issue.

Whether this practice of public participation is continued will depend in large part upon the public response to notices of this nature. In the past, public response to the solicitation of views has been rather limited and has principally been from those who were opposed to proposed changes in rules and practices. Accordingly, it is requested that interested parties submit their views irrespective of whether they agree or disagree with the proposal under consideration.

ROBERT GOTTSCHALK,
May 22, 1972. *Commissioner of Patents.*

[899 O.G. 820]

(205) REDUCTION IN PATENTS GRANTED

The backlog of patent applications awaiting printing has been virtually eliminated. Effective with patents issuing on October 31, 1972, the weekly number of General and Mechanical, Electrical, and Chemical patents granted will be determined by the availability of applications in which the Base Issue Fee has been paid. Applicants who desire to obtain early patent grant dates are encouraged to remit payment of Base Issue Fees promptly.

WILLIAM I. MERKIN,
Oct. 10, 1972. ***Assistant Commissioner for Administration.***

[903 O.G. 1512]

(206) ICIREPAT NUMBERS FOR IDENTIFICATION OF BIBLIOGRAPHIC DATA ON THE FIRST PAGE OF PATENT AND LIKE DOCUMENTS

The Paris Union Committee for International Cooperation in Information Retrieval Among Patent Offices (ICIREPAT) has recently approved revisions in INID Codes (ICIREPAT Numbers for Identification of Data) which become effective for use by the countries which apply such codes to their documents on January 1, 1973. A complete list of the Codes, as revised, appears below.

Changes in INID Codes which particularly affect their application to U.S. patents consist of the provision of the new codes [75] and [76] that are intended primarily for use by countries in which the national laws require that the inventor and applicant are normally the same. Use of the code [72] which was heretofore applied to U.S. patents will be discontinued and, in lieu thereof, codes [75] and [76], as appropriate, will be used effective with the patent issue of January 2, 1973.

The purpose of INID Codes is to provide a means whereby the various data appearing on the first page of patent and like documents can be identified without knowledge of the language used and the laws applied. They are now used by a number of Patent Offices and have been applied to U.S. patents since Aug. 4, 1970. Some of the codes are not pertinent to the documents of a particular country and some which are may, in fact, not be used. Those codes which are not applicable to U.S. patents or not used are identified in the list below.

[10] *Document identification*
- [11] Number of the document
- [19] ICIREPAT country code, or other identification, of the country publishing the document

[20] *Domestic filing data*
- [21] Number(s) assigned to the application(s), e.g. "Numero d'enregistrement national," "Aktenzeichen"
- [22] Date(s) of filing application(s)
- [23] Other date(s) of filing, including exhibition filing date and date of filing complete specification following provisional specification [1]

[30] *Convention priority data* [2]
- [31] Number(s) assigned to priority application(s) [1]
- [32] Date(s) of filing of priority application(s) [1]
- [33] Country (countries) in which priority application(s) was (were) filed [1]

[40] *Date(s) of making available to the public*
- [41] Date of making available to the public by viewing, or copying on request, an unexamined document, on which no grant has taken place on or before the said date [1]
- [42] Date of making available to the public by viewing, or copying on request, an examined document, on which no grant has taken place on or before the said date [1]
- [43] Date of publication by printing or similar process of an unexamined document, on which no grant has taken place on or before the said date [1]
- [44] Date of publication by printing or similar process of an examined document, on which no grant has taken place on or before the said date [1]

See footnotes at end of item.

[45] Date of publication by printing or similar process of a document, on which grant has taken place on or before the said date
[46] Date of publication by printing or similar process of the claim(s) only of a document [1]
[47] Date of making available to the public by viewing, or copying on request, a document on which grant has taken place on or before the said date [1]

[50] *Technical information*
[51] International Patent Classification
[52] Domestic or national classification
[53] Universal Decimal Classification [1]
[54] Title of the invention
[55] Keywords [1]
[56] List of prior art documents, if separate from descriptive text
[57] Abstract or claim
[58] Field of search

[60] *Reference(s) to other legally related domestic document(s)* [2]
[61] Related by addition(s) [1]
[62] Related by division(s)
[63] Related by continuation(s)
[64] Related by reissue(s)

[70] *Identification of parties concerned with the document*
[71] Name(s) of applicant(s) [1]
[72] Name(s) of inventor(s) if known to be such [1]
[73] Name(s) of grantee(s)
[74] Name(s) of attorney(s) or agent(s) [1]
[75] Name(s) of inventor(s) who is(are) also applicant(s)
[76] Name(s) of inventor(s) who is(are) also applicant(s) and grantee(s)

Codes [75] and [76] are intended primarily for use by countries in which the national laws require that the inventor and applicant are normally the same. In other cases [71] and [72] or [71], [72] and [73] should generally be used.

Approved:

WILLIAM I. MERKIN,
Assistant Commissioner for Administration.

Nov. 21, 1972.

Notes concerning the application of INID Codes to U.S. patents:

[1] This item is either not applicable to U.S patents or, if applicable, is either not coded or not assigned this code.

[2] The respective specific data elements within this category are not individually coded. They are printed in a particular format under the caption "Foreign Application Priority Data" which is identified by the INID Code [30].

[3] The specific data applicable to a particular patent is printed under the caption "Related U.S. Application Data." Where the relationship is due solely to division or to continuation and/or continuation-in-part, the data is identified by the appropriate specific INID Code, i.e., [62] or [63], respectively. Where the relationship is due to any combination of these two specific sub-categories, the data is identified by use of the generic INID Code [60].

[905 O.G. 684]

(207)

GSA PATENT LICENSING REGULATIONS FOR GOVERNMENT-OWNED INVENTIONS

The General Services Administration issued on January 29, 1973, regulations that will govern the granting of licenses, both exclusive and nonexclusive, under government-owned patents and patent applications. The regulations were promulgated pursuant to Section 2 of the August 23, 1971, Memorandum and Statement of Government Patent Policy issued by President Nixon, and will form new Subpart 101–4.1, Title 41, of the Code of Federal Regulations.

Each government agency is required by Section 101–4.104–1 of the regulations to cause lists of their inventions that are available for licensing to be published in the Federal Register, the Patent Office OFFICIAL GAZETTE, *and at least one other publication. In response to this requirement, the* OFFICIAL GAZETTE *will republish all such lists published in the Federal Register. Copies of listed patents are available from the Commissioner of Patents, Washington, D.C., 20231, for 50¢ each. Copies of patent applications, however, must be ordered from the National Technical Information Service (NTIS), Springfield, Virginia 22152. Also available from NTIS are two publications that include all patents and patent applications of the National Aeronautics and Space Administration that are available for licensing. These publications include abstracts of inventions which are listed by field of technology. The publications are entitled "NASA Patent Abstracts Bibliography," dated January 1972 and July 1972, and are identified as NASA SP–7039, Section 1, and NASA SP–7039(01), Section 1. Section 2 of both documents, representing a continuous indexing system, is also available.*

The GSA licensing regulations are republished below. Also republished are the various listings of government-owned patents and patent applications that have previously appeared in the Federal Register as available for licensing under these regulations. As additional listings are published in the Federal Register, they will be included in future issues of the OFFICIAL GAZETTE.

WILLIAM I. MERKIN,
Apr. 2, 1973. *Assistant Commissioner for Administration.*

Title 41—Public Contracts and Property Management

CHAPTER 101—FEDERAL PROPERTY MANAGEMENT REGULATIONS

SUBCHAPTER A—GENERAL

PART 101–4—PATENTS

Licensing of Government-Owned Inventions

This amendment of the Federal Property Management Regulations adds new Part 101–4, Patents, and new Subpart 101–4.1, Licensing of Government-Owned Inventions. The amendment sets forth regulations which implement the Presidential Statement of Government Patent Policy dated August 23, 1971. The statement specifically directs the General Services Administration to issue regulations which provide for the licensing and dedication of Government-owned inventions for the purpose of enhancing the utilization of such inventions. Development of the regulation was accomplished in cooperation with the Committee on Government Patent Policy, Federal Council for Science and Technology. Agency and industry comments were considered.

The table of contents for Subchapter A is amended to add new entries, as follows:

Subpart 101–4.1—Licensing of Government-Owned Inventions

Sec.

101–4.100 Scope of subpart.
101–4.101 Policy.
101–4.102 Definitions.
101–4.103 Types of licenses and conditions for licensing.
101–4.103–1 Government inventions available for licensing.
101–4.103–2 Nonexclusive license.
101–4.103–3 Limited exclusive license.
101–4.103–4 Additional licenses.
101–4.103–5 Royalties.

101–4.103–6 Reports.
101–4.104 Procedures.
101–4.104–1 Government agency publication requirements.
101–4.104–2 Contents of a nonexclusive license application.
101–4.104–3 Contents of an exclusive license application.
101–4.104–4 Published notices.
101–4.104–5 Modification or revocation.
101–4.104–6 Appeals.
101–4.105 Litigation.
101–4.106 Transfer of custody of Government inventions.

AUTHORITY: Sec. 205(c), 63 Stat. 390; 40 U.S.C. 486(c).

Part 101–4 is added as follows:

§ 101–4.100 Scope of subpart.

This subpart prescribes the terms, conditions, and procedures for the licensing of rights in domestic patents and patent applications vested in the United States of America, and for dedication of Government-owned inventions by a Government agency.

§ 101–4.101 Policy.

(a) A major premise of the Presidential Statement of Government Patent Policy, August 23, 1971 (36 FR 16887, August 26, 1971), is that Government-owned inventions normally will best serve the public interest when they are developed to the point of practical application and made available to the public in the shortest possible time. The granting of express nonexclusive or exclusive licenses for the practice of these inventions may assist in the accomplishment of the national objective to achieve a dynamic and efficient economy. However, it is recognized that there may be inventions as to which a Government agency deems dedication preferable to accomplish these objectives.

(b) The granting of nonexclusive licenses generally is preferable since the invention is thereby laid open to all interested parties and serves to promote competition in industry, if the invention is in fact promoted commercially. However, to obtain commercial utilization of the invention, it may be necessary to grant an exclusive license for a limited period of time as an incentive for the investment of risk capital to achieve practical application of an invention.

(c) Whenever the grant of an exclusive license is deemed appropriate, it shall be negotiated on terms and conditions most favorable to the public interest. In selecting an exclusive licensee, consideration shall be given to the capabilities of the prospective licensee to further the technical and market development of the invention, his plan to undertake the development, the projected impact on competition, and the benefit to the Government and the public. Consideration shall be given also assisting small business and minority business enterprises, as well as economically depressed, low income, and labor surplus areas, and whether each or any applicant is a U.S. citizen or corporation. Where there is more than one applicant for an exclusive license, that applicant shall be selected who is determined to be most capable of satisfying the criteria and achieving the goals set forth in this subpart.

(d) Subject to the following: (1) Specific statutes governing the utilization of patent rights of certain Government agencies, or (2) any existing or future treaty or agreement between the United States and any foreign government or intergovernmental organization, or (3) licenses under or other rights to inventions made or conceived in the course of or under Government research and development contracts where such licenses or other rights to such inventions are granted to or provided for in the contract and acquired by the party contracting with the Government agency, no license shall be granted or implied in a Government-owned invention except as provided for in this subpart.

(e) No grant of a license under this subpart shall be construed to confer upon any licensee any immunity from the antitrust laws or from a charge of patent misuse, and the acquisition and use of rights pursuant to this subpart shall not be immunized from the operation of State or Federal law by reason of the source of the grant.

§ 101–4.102 Definitions.

(a) "Government invention" means an invention covered by a domestic patent or patent application that is vested in the United States and is designated by the Government agency having custody of the invention as appropriate for the grant of an express nonexclusive or exclusive license.

(b) "To the point of practical application" means to manufacture in the case of a composition or product, to practice in the case of a process, or to operate in the case of a machine under such conditions as to establish that the invention is being worked and that its benefits are reasonably accessible to the public.

(c) "Government agency" means any executive department, independent commission, board, office, agency, administration, authority, wholly owned corporation, or other independent establishment of the executive branch of the Government of the United States of America.

(d) "The head of the Government agency" means the head of the agency or his designee.

§ 101–4.103 Types of licenses and conditions for licensing.

§ 101–4.103–1 Government inventions available for licensing.

Government inventions normally will be made available for the granting of express nonexclusive or limited exclusive licenses to responsible applicants according to the factors and conditions set forth in §§ 101–4.103–2 and 101–4.103–3, subject to the applicable procedures of § 101–4.104.

§ 101–4.103–2 Nonexclusive license.

(a) *Availability of licenses.* Each Government invention normally shall be made available for the granting of nonexclusive revocable licenses, subject to

the provisions of any other licenses, including those under § 101–4.103–4.

(b) *Terms of grant.* (1) The duration of the license shall be for a period as specified in the license agreement, provided that the licensee complies with all the terms of the license.

(2) The license shall require the licensee to bring the invention to the point of practical appplication within a period specified in the license, or such extended period as may be agreed upon, and to continue to make the benefits of the invention reasonably accessible to the public.

(3) The license may be granted for all or less than all fields of use of the invention, and throughout the United States of America, its territories and possessions, the Commonwealth of Puerto Rico, and the District of Columbia, or in any lesser geographic portion thereof.

(4) After termination of a period specified in the license agreement, the Government agency may restrict the license to the fields of use and/or geographic areas in which the licensee has brought the invention to the point of practical application and continues to make the benefits of the invention reasonably accessible to the public.

(5) The license may extend to subsidiaries and affiliates of the licensee but shall be nonassignable without approval of the Government agency, except to the successor of that part of the licensee's business to which the invention pertains.

§ 101–4.103–3 Limited exclusive license.

(a) *Availability of licenses.* Each Government invention may be made available for the granting of a limited exclusive license provided that:

(1) The invention has been published as available for licensing pursuant to § 101–4.104–1 for a period of at least 6 months;

(2) The head of the Government agency has determined that (i) the invention may be brought to the point of practical application in certain fields of use and/or in certain geographical locations by exclusive licensing, (ii) the desired practical application has not been achieved under any nonexclusive license granted on the invention, and (iii) the desired practical application is not likely to be achieved expeditiously in the public interest under a nonexclusive license or as a result of further Government-funded research or development;

(3) The notice of the prospective licensee has been published, pursuant to § 101–4.104–4(a) for at least 60 days; and

(4) After termination of the period set forth in § 101–4.103–3(a)(3), the Government agency has determined that no applicant for a nonexclusive license has brought or will bring, within a reasonable period, the invention to the point of practical application as specified in the exclusive license, and that to grant the exclusive license would be in the public interest.

(b) *Selection of exclusive licensee.* An exclusive licensee shall be selected on bases consistent with the policy set forth in § 101–4.101 and in accordance with the procedures set forth in § 101–4.104.

(c) *Terms of grant.* (1) The license may be granted for all or less than all fields of use of the Government invention and throughout the United States of America, its territories and possessions, the Commonwealth of Puerto Rico, and the District of Columbia, or in any lesser geographic portion thereof.

(2) Subject to the rights reserved to the Government in §§ 101–4.103–3(c)(6) and 101–4.103–3(c)(7), the licensee shall be granted the exclusive right to practice the invention in accordance with the terms and conditions specified in the license.

(3) The duration of the license shall be negotiated but shall be for a period less than the terminal portion of the patent, the period remaining being sufficient to make the invention reasonably available for the grant of a nonexclusive license; and such period of exclusivity shall not exceed 5 years unless the head of the Government agency determines on the basis of a written submission supported by a factual showing that a longer period is reasonably necessary to permit the licensee to enter the market and recoup his reasonable costs in so doing.

(4) The license shall require the licensee to bring the invention to the point of practical application within a period specified in the license, or within a longer period as approved by the Government agency, and to continue to make the benefits of the invention reasonably accessible to the public.

(5) The license shall require the licensee to expend a specified minimum amount of money and/or to take other specified actions, within a specified period of time after the effective date of the license, in an effort to bring the invention to the point of practical application.

(6) The license shall be subject to the irrevocable royalty-free right of the Government of the United States to practice and have practiced the invention by or on behalf of the Government of the United States and on behalf of any foreign government or intergovernmental organization pursuant to any existing or future treaty or agreement with the United States.

(7) The license shall reserve to the Government agency the right to require the licensee to grant sublicenses to responsible applicants on terms that are reasonable in the circumstances (i) to the extent that the invention is required for public use by Government regulations, or (ii) as may be necessary to fulfill health or safety needs, or (iii) for other public purposes stipulated in the license.

(8) The license may extend to subsidiaries and affiliates of the licensee but shall be nonassignable without approval of the Government agency, except to successors of that part of the licensee's business to which the invention pertains.

(9) An exclusive licensee may grant sublicenses under his license, subject to the approval of the Government agency. Each sublicense granted by an exclusive

licensee shall make reference to the exclusive license, including the rights retained by the Government under the exclusive license, and a copy of such sublicense shall be furnished to the Government agency.

(10) The license may be subject to such other terms as may be in the public interest.

§ 101–4.103–4 Additional licenses.

Subject to any outstanding licenses, nothing in this subpart shall preclude a Government agency from granting additional nonexclusive or limited exclusive licenses for Government-owned inventions when the Government agency determines that to do so would provide for an equitable exchange of patent rights. The following exemplify circumstances wherein such licenses may be granted:

(a) In consideration of the settlement of an interference;

(b) In consideration of a release of a claim of infringement; or

(c) In exchange for or as part of the consideration for a license under adversely held patents.

§ 101–4.103–5 Royalties.

(a) Normally, royalties shall not be charged under nonexclusive licenses granted to U.S. citizens and U.S. corporations on Government inventions; however, the Government agency may require other considerations.

(b) An exclusive license on a Government invention may require the payment of royalties, and/or other considerations, when the licensing situation and the policy in § 101–4.101 considered together, indicate that it is in the public interest to do so.

§ 101–4.103–6 Reports.

A license shall require the licensee to submit periodic reports on his efforts to achieve practical application of the invention. The reports shall contain information within his knowledge, or which he may acquire under normal business practices, pertaining to the commercial use being made of the invention and other information which the Government agency may determine is pertinent to its licensing activities and is specified in the license.

§ 101–4.104 Procedures.

§ 101–4.104–1 Government agency publication requirements.

Each Government agency shall cause to be published in the FEDERAL REGISTER, the Official Gazette of the U.S. Patent Office, and at least one other publication that the Government agency deems would best serve the public interest, a list of the Government inventions in its custody available for licensing under the conditions specified in § 101–4.103. The list shall be revised periodically to include directly, or by reference to a previously published list, all inventions currently available for licensing. Other publications on inventions available for licensing are encouraged and may include abstracts, when appropriate, as well as information on the design, construction, use, and potential market for the inventions.

§ 101–4.104–2 Contents of a nonexclusive license application.

An application for a nonexclusive license under a Government invention should be addressed to the head of the Government agency having custody of the invention, and shall include:

(a) Identification of invention for which license is desired, including the patent application serial number or patent number, title and date, if known, and any other identification of invention;

(b) Name and address of the person, company, or organization applying for license and whether the applicant is a U.S. citizen or a U.S. corporation;

(c) Name and address of representative of applicant to whom correspondence should be sent;

(d) Nature and type of applicant's business;

(e) Source of information concerning the availability of a license on this invention;

(f) Purpose for which license is desired and a brief description of applicant's plan to achieve that purpose;

(g) A statement of the fields of use for which applicant intends to practice the invention; and

(h) A statement as to the geographic areas in which the applicant would practice the invention.

§ 101–4.104–3 Contents of an exclusive license application.

In addition to the information indicated in § 101–4.104–2, an application for an exclusive license shall include:

(a) Applicant's status, if any, in any one or more of the following categories: (1) Small business firm, (2) minority business enterprise, (3) location in a surplus labor area, (4) location in a low-income area, and (5) location in an economically depressed area;

(b) A statement of applicant's capability to undertake the development and marketing required to achieve the practical application of the invention;

(c) A statement describing the time, expenditure, and other acts which the applicant considers necessary to achieve practical application of the invention and the applicant's offer to invest that sum to perform such acts if the license is granted;

(d) A statement that contains the applicant's best knowledge of the extent to which the Government invention is being practiced by private industry and the Government; and

(e) Any other facts which the applicant believes are evidence that it is in the public interest for the Government agency to grant an exclusive license rather than a nonexclusive license and that such exclusive license should be granted to the applicant.

§ 101–4.104–4 Published notices.

(a) A notice that a prospective exclusive licensee has been selected shall be

published in the FEDERAL REGISTER, and a copy of the notice shall be sent to the Attorney General. The notice shall include:

(1) Identification of the invention;

(2) Identification of the selected licensee;

(3) Duration and scope of the contemplated license; and

(4) A statement to the effect that the license will be granted unless:

(i) An application for a nonexclusive license, submitted by a responsible applicant pursuant to § 101–4.104–2, is received by the Government agency having custody of the invention within 60 days from the publication of the notice in the FEDERAL REGISTER, and the Government agency determines in accordance with its prescribed procedures under which procedures the Government agency shall record and make available for public inspection all decisions made pursuant thereto and the basis therefor, that the applicant has established that he has already achieved or is likely to bring the invention to the point of practical application within a reasonable period under a nonexclusive license; or

(ii) The Government agency determines that a third party has presented evidence and argument which has established that it would not be in the public interest to grant the exclusive license.

(b) If an exclusive license has been granted pursuant to this Subpart 101–4.1, notice thereof shall be published in the FEDERAL REGISTER. Such notice shall include:

(1) Identification of the invention;

(2) Identification of the licensee; and

(3) Duration and scope of the license.

(c) If an exclusive license has been modified or revoked pursuant to § 101–4.104–5, notice thereof shall be published in the FEDERAL REGISTER. Such notice shall include:

(1) Identification of the invention;

(2) Identification of the licensee; and

(3) Effective date of the modification or revocation.

§ 101–4.104–5 Modification or revocation.

(a) Any license granted pursuant to this Subpart 101–4. 1 may be modified or revoked by the Government agency granting the license if the licensee at any time defaults in making any report required by the license or commits any breach of any covenant or agreement therein contained.

(b) A license may also be revoked by the Government agency granting the license if the licensee willfully makes a false statement of a material fact or willfully omits a material fact in the license application or any report required in the license agreement.

(c) Before modifying or revoking any license granted pursuant to this subpart for any cause, the Government agency shall furnish the licensee and any sublicensee of record a written notice of intention to modify or revoke the license, and the licensee and any sublicensee shall be allowed 30 days after such notice to remedy any breach of any covenant or agreement as referred to in (a) of this section or to show cause why the license should not be modified or revoked.

§ 101–4.104–6 Appeals.

An applicant for a license, a licensee, or such other third party who has participated under § 101–4.104–4(a)(4)(ii) shall have the right to appeal, in accordance with procedures prescribed by the Government agency, any decision concerning the granting, denial, interpretation, modification, or revocation of a license.

§ 101–4.105 Litigation.

An exclusive licensee shall be granted the right to sue at his own expense any party who infringes the rights set forth in his license and covered by the licensed patent. The licensee may join the Government upon consent of the Attorney General as a party complainant in such suit but without expense to the Government, and the licensee shall pay costs and any final judgment or decree that may be rendered against the Government in such suit. The Government shall have an absolute right to intervene in any such suit at its own expense. The licensee shall be obligated to furnish promptly to the Government, upon request, copies of all pleadings and other papers filed in any such suit and of evidence adduced in proceedings relating to the licensed patent including, but not limited to, negotiations or settlement and agreements settling claims by a licensee based on the licensed patent, and all other books, documents, papers, and records pertaining to such suit. If as a result of any such litigation the patent shall be declared invalid, the licensee shall have the right to surrender his license and be relieved from any further obligation thereunder.

§ 101–4.106 Transfer of custody of Government inventions.

A Government agency having custody of a Government-owned invention may enter into an agreement to transfer its custody to another Government agency for purposes of administration, including the granting of licenses pursuant to this subpart.

Effective date. This subpart is effective May 7, 1973, but may be observed earlier. However, the head of a Government agency may exclude from the terms, conditions, and procedures set forth in this subpart any license that was in the process of being negotiated on the effective date.

Dated: January 29, 1973.

ARTHUR F. SAMPSON,
Acting Administrator of General Services.

[FR Doc.73–2119 Filed 2–2–73;8:45 am]

[909 O.G. 1171]

(208) CHANGE IN LEGAL HOLIDAYS

Those doing business before the Patent Office are hereby reminded that by Public Law 90—363, 82 Stat. 250, effective January 1, 1971, Section 6103(a) of Title 5, United States Code, was amended to read as follows:

§ 6103. *Holidays*

(a) The following are legal public holidays:
New Year's Day, January 1.
Washington's Birthday, the third Monday in February.
Memorial Day, the last Monday in May.
Independence Day, July 4.
Labor Day, the first Monday in September.
Columbus Day, the second Monday in October.
Veterans Day, the fourth Monday in October.
Thanksgiving Day, the fourth Thursday in November.
Christmas Day, December 25.

Each of the holidays enumerated will constitute "a holiday within the District of Columbia," as referred to in Section 21, Title 35, United States Code.

WILLIAM E. SCHUYLER, JR.,
Dec. 2, 1970. *Commissioner of Patents.*

[881 O.G. 1707]

EDITORIAL NOTE: Sec. 6103(c) states that January 20 of each fourth year after 1965, Inauguration Day, is also a legal public holiday.

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(209) OFFICE OF THE SECRETARY

[Dept. Organization Order 30–3A]

PATENT OFFICE

Organization and Functions

This order effective December 15, 1972, supersedes the material appearing at 27 FR 11469 of November 21, 1962.

SECTION 1. *Purpose.* This order delegates authority to the Commissioner of Patents and prescribes the functions of the Patent Office.

SEC. 2. *Status and line of authority.* .01 The Patent Office is hereby continued as a primary operating unit of the Department of Commerce. First established as an independent bureau under the direction of a Commissioner of Patents by the general revision of patent laws enacted by Congress July 4, 1836 (5 Stat. 117), it became a bureau of the Department of Commerce by Executive Order of April 1, 1925, in accordance with the authority contained in the act of February 14, 1903 (32 Stat. 830). When the patent laws were codified as Title 35, United States Code, effective January 1, 1953, the Patent Office was continued as an office in the Department of Commerce.

.02 The Commissioner of Patents (hereinafter called the Commissioner), who is appointed by the President by and with the advice and consent of the Senate shall be the head of the Patent Office. He shall be principally assisted by a Deputy Commissioner and four assistant commissioners, whose titles and status are specified below. The First Assistant Commissioner (Deputy Commissioner) and the first two assistant commissioners are provided for by 35 U.S.C. 3 and are appointed by the President by and with the advice and consent of the Senate.

a. The Deputy Commissioner (First Assistant Commissioner under 35 U.S.C. 3).

b. The Assistant Commissioner for Patents (an assistant commissioner under 35 U.S.C. 3).

c. The Assistant Commissioner for Trademarks (an assistant commissioner under 35 U.S.C. 3).

d. The Assistant Commissioner for Legal Affairs.

e. The Assistant Commissioner for Administration.

.03 The Deputy Commissioner or, in the event of a vacancy in that office, the assistant commissioner appointed under 35 U.S.C. 3 who is senior in date of appointment, shall act as Commissioner during a vacancy in that office until a Commissioner is appointed and takes office. In the absence of the Commissioner, the Deputy Commissioner shall act as Commissioner. If the Deputy Commissioner is likewise absent or that office is vacant, one of the assistant Commissioners appointed under 35 U.S.C. 3 or the Assistant Commissioner for Legal Affairs or the Solicitor of the Patent Office shall act as Commissioner in an order of precedence prescribed by the Commissioner.

.04 The Commissioner shall report and be responsible to the Assistant Secretary for Science and Technology.

SEC. 3. *Delegation of authority.* .01 Pursuant to the authority vested in the Secretary of Commerce by 35 U.S.C. 3 and Reorganization Plan No. 5 of 1950, the functions of the Patent Office and its officers specified in Title 35 of the United States Code, as amended, are hereby vested in the Secretary of Commerce and redelegated to the Commissioner of Patents.

.02 Pursuant to the authority vested in the Secretary of Commerce by law, the Commissioner of Patents is hereby delegated authority to perform the following functions vested in the Secretary of Commerce.

a. The functions in Title 15, Chapter 22 of the United States Code, which pertain to trademarks.

b. The functions in Executive Order 10096 of January 23, 1950, and the Executive Order 10930 of March 24, 1961, which pertain to inventions made by Government employees.

c. The functions in 42 U.S.C. 2181 and 2182, which pertain to inventions relating to atomic weapons, and in 42 U.S.C. 2457, which pertain to property rights in inventions made in performance of work under contract for the National Aeronautics and Space Administration.

d. Such functions under other authorities of the Secretary of Commerce as are applicable to performing the functions assigned in this order.

.03 Exercise of the functions delegated in paragraphs .01 and .02 of this section shall be subject to such policies or directions as may be prescribed by the Secretary of Commerce or the Assistant Secretary for Science and Technology.

.04 The Commissioner of Patents may, except as precluded by law or regulation, redelegate his authority to employees of the Patent Office subject to such conditions in the exercise of the delegated authority as he may prescribe.

SEC. 4. *Functions.* The Patent Office shall perform the following functions:

.01 Examine applications for patent to determine if they meet the requirements of law for the issuance of patents and, upon such determination, granting patents.

.02 Administer special laws and regulations as to secrecy of certain inventions, licenses for foreign filing, and those relating to atomic energy and space technology.

.03 Decide the ownership of patents and the rights to inventions made by Government employees, as provided by Executive Orders 10096 and 10930.

.04 Provide for the publication, storage, dissemination, and exchange of patents and related documentation.

.05 Maintain systems and facilites providing appropriate access to United States and foreign patents and other technical literature for use of the examiners and the public.

.06 Examine applications for the registration of trademarks to determine their entitlement to registration under the law; give public notice of trademarks allowed for registration and publish registered trademarks; maintain the principal and supplemental registers of trademark registrations, and provide for public access to such registers and related trademark records.

.07 Issue patents and certificates of trademark registration.

.08 Reissue defective patents and issue certificates of correction of patents and trademark registrations.

.09 Maintain records as to proprietary interests in patents and trademarks and applications therefor.

.10 Carry on or authorize studies and programs, separately or in coordination with other United States, foreign and international agencies, regarding domestic and international patent and trademark law.

.11 Perform other functions required, or which the Commissioner deems necessary and proper, in exercising the authority delegated herein.

Effective date: December 15, 1972.

GUY W. CHAMBERLIN, JR.,
Acting Assistant Secretary for Administration.

[FR Doc. 73–320; Filed 1–5–73; 8:45 am]

[Dept. Organization Order 30-3B]

PATENT OFFICE

Organization and Functions

This order effective December 15, 1972, supersedes the material appearing at 36 FR 9078 of May 19, 1971.

SECTION 1. *Purpose.* This order prescribes the organization and assignment of functions within the Patent Office. Department Organization Order 30-3A prescribes the scope of authority and functions.

SEC. 2. *Organization structure.* The principal organization structure and line of authority of the Patent Office shall be as depicted in the attached organization chart. A copy of the organization chart is attached to the original document on file in the Office of the Federal Register.

SEC. 3. *Office of the Commissioner.* The Commissioner determines the policies and directs the programs of the Patent Office and is responsible for the conduct of all activities of the Patent Office. He is principally assisted by Deputy Commissioner and four Assistant Commissioners who shall have the main duties as specified below:

a. The Deputy Commissioner (First Assistant Commissioner under 35 U.S.C. 3) shall assist the Commissioner in the direction of the Patent Office with immediate responsibility for the Office of Petitions and shall perform the duties of the Commissioner in the latter's absence.

b. The Assistant Commissioner for Patents (an assistant commissioner under 35 U.S.C. 3) shall provide administrative and policy direction for the patent examining and related operations which consist of the organizational elements enumerated in section 5 of this order. He is assisted by a Deputy Assistant Commissioner who shall, among other duties, have immediate responsibility for the patent examining groups and shall perform the duties of the Assistant Commissioner during the latter's absence.

c. The Assistant Commissioner for Trademarks (an assistant commissioner under 35 U.S.C. 3) shall provide administrative and policy direction to the trademark registration and related operations which consist of the organizational elements enumerated in section 6 of this order.

d. The Assistant Commissioner for Legal Affairs shall be the chief law officer of the Patent Office and as applicable shall provide administrative and policy direction to the organizational elements enumerated in section 7 of this order. Pursuant to Department Organization Order 10-6, he shall be subject to the overall authority of the Department's General Counsel with respect to legal and legislative matters involving the Patent Office, other than in connection with the issuance of patents or the registration of trademarks.

e. The Assistant Commissioner for Administration shall be the principal advisor to the Commissioner on the formulation and application of management policies and shall provide administrative, management, and operational support services to components of the Patent Office. In addition, he shall provide administrative and policy direction to a staff assigned to his office as well as to the organizational elements enumerated in section 8 of this order. He shall be assisted by a Deputy Assistant Commissioner who shall perform the duties of the Assistant Commissioner during the latter's absence.

SEC. 4. *Office reporting to the Commissioner.* .01 The Offices of Petitions shall receive, docket, maintain records, and take other appropriate action with respect to petitions to the Commissioner submitted under applicable law and regulations; assign petitions to appropriate officials for decision or recommend and prepare decisions for review and approval by the Deputy Commissioner; and recommend changes in office policy, practices, and procedures, where the need for such appears evident from the records of the office.

.02 The Office of Government Inventions and Patents shall administer Executive Order 10096, as amended by Executive Order 10930 and related regulations, including the rendering of final decisions on the ownership of patents and the rights to inventions made by Government employees, and advise the Commissioner on matters involving the Committee on Government Patent Policy (of the Federal Council for Science and Technology). It shall also conduct research, liaison, and coordinate functions needed to carry out Executive Order 10096 and to advise the Commissioner on Committee matters; provided executive secretariat support to the Committee; and assist in the development and formulation, to the extent appropriate, of a uniform Government-wide policy.

.03 The Office of Advanced Systems Development shall apply analytical basic research techniques to the development of new machine-assisted experimental search, retrieval, and display systems; to the exploration and application of advanced technology for the betterment of operating systems; and to increasing the effectiveness of technical information dissemination and accessing measures. This work is directed primarily to providing solutions to hitherto unresolved problems and to the development of experimental or test applications, for simulations of original techniques or operations. It shall assist in the installation, pilot use, and evaluation of experimental systems in operating environments.

.04 The Office of Information Services shall advise and represent the Commissioner on information matters; conduct programs fostering public understanding of the American patent system and the functions, services and administrative publications of the Patent Office; develop publication policies; provide direction and assistance in developing new and revised publications; and assure conformity with policies, regulations, and standards concerning publications and publication practices.

SEC. 5. *Offices reporting to the Assistant Commissioner for Patents.* .01 The Office of Patent Program Control shall develop procedures for and establish quality, quantity, and other performance standards relating to the conduct of the patent examination and classification functions; establish program activity targets and continually evaluate status against program objectives; provide training to examiners in patent practices and procedures; and monitor compliance with examination and classification standards and procedures.

.02 The Office of Patent Classification shall develop, implement, and maintain subject matter classification systems for patent search files of prior art; evaluate and adapt experimental or other search systems developed elsewhere; determine requirements for and initiate procurement of foreign patent and literature abstracting services for use by examiners; and provide technical specifications, guidance, advice, and assistance to the contracting officer in such procurements; coordinate the classification of U.S. and foreign patent documents and nonpatent literature; and participate in developing and fostering harmonization of the United States and the International Patent Classification systems.

.03. The Examining Groups shall examine applications for patents to ascertain if the applicants are entitled to patents under the law and grant patents to those so entitled. Each examining group shall perform this function for patent applications falling within the generic category assigned to it. The number of examining groups and the coverage of the generic categories shall be determined by the Commissioner.

SEC. 6. *Offices reporting to the Assistant Commissioner for Trademarks.* .01 The Office of Trademark Program Control shall develop guidelines governing trademark examining procedures; establish program activity targets and continually evaluate status against program objectives; and provide instruction in trademark practice and procedures and coordinate trademarks administrative support activities.

.02 The Trademark Trial and Appeal Board shall be responsible for hearing and deciding adversary proceedings involving interfering applications, oppositions to registration, cancellations, and concurrent use proceedings; and for hearing and deciding appeals from final refusals of the trademark examiners to allow the registration of trademarks.

.03 The Trademark Examining Operation shall be responsible for the classification of trademark applications into classes of goods and services, the examination and processing of these applications, and the registration of trademarks, service marks, and certification marks; and maintain the principal and supplemental registers of trademarks.

SEC. 7. *Offices reporting to the Assistant Commissioner for Legal Affairs.* .01 The Office of the Solicitor shall handle all litigation to which the Commissioner is a party and provide other legal services, including advice and assistance on legislative matters, and maintenance of the law library.

.02 The Examiners-in-chief sitting as a Board of Patent Appeals shall be responsible for hearing and deciding appeals from adverse decisions of examiners upon applications for patents.

.03 The Board of Patent Interferences shall conduct patent interference proceedings and make final determinations in the Patent Office as to priority of invention. The Board shall also hear and decide questions concerning prop-

erty rights in inventions in the atomic energy and space fields brought before it under the provisions of sections 2182 and 2456 (d) and (e) of title 42, U.S.C.

.04 The Office of Legislation shall develop recommendations and advise policy and action concerning matters which may require changes in the patent and trademark laws; review and prepare analysis of bills or drafts of legislation concerning patent or trademark matters received for technical appraisal; prepare legislative proposals and, after appropriate clearance, draft legislation and supporting documentation for clearance with the Department's Office of the General Counsel and the Office of Management and Budget, for consideration by the Congress; and maintain liaison with patent and trademark bar associations, industry, and others concerned with proposed and pending legislation.

.05 The Office of International Affairs shall coordinate the development of policy and program recommendations or positions respecting international patent and trademark affairs, including all proposed new or modified agreements under the Paris Union, Patent Cooperation Treaty, or like treaties; maintain liaison in such matters with the Office of the Secretary, the Department of State, and concerned elements of the public; and participate in negotiating patent and trademark matters in establishing international agreements and in the implementation of programs affecting Patent Office commitments or responsibilities in these areas.

SEC. 8. *Offices reporting to the Assistant Commissioner for Administration.* .01. Management Planning Organizations:

a. The Office of Budget shall formulate, interpret, and execute budgetary and fiscal policies; establish and maintain a comprehensive budget program collaborating with cost center officials in developing budget and fiscal plans; develop and present budget requests; allocate and maintain budgetary accountability of available funds; maintain external liaison in budgetary matters; and review and evaluate the fulfillment of budget-based program commitments.

b. The Office of Management and Organization shall plan and conduct studies designed to improve organization, methods, procedures, workflow, work measurement, managerial technicals, and resource utilization, or otherwise increase efficiency, effectiveness and economy of operations; develop and manage a system for the issuance of internal administrative orders and instructions; promote development of the Patent Office management improvement program and coordinate the collection, review and submission of reportable plans and accomplishments thereon; coordinate a program for the management and control of external reports; and make special studies as required.

c. The Office of Program Planning and Evaluation shall formulate plans for and coordinate the development of Patent Office-wide long and short range program objectives within the framework of budgetary constraints; define, project, and allocate the manpower and other resources required to achieve Patent Office-wide objectives; develop and monitor a management information system which prescribe code structures for and consolidates all administrative management systems into a single integrated data base to provide information designed to measure performance and achievement against planned objectives; and develop and issue a wide variety of timely internal analytical and interpretive reports to the managers of the Patent Office.

.02 Public service organizations:

a. The Office of Publications shall schedule and manage the processing and movement of allowed patent application files in procuring the creation of full patent text machine language data base and the composition and printing of weekly patent issues and related announcements in the OFFICIAL GAZETTE; provide requisition and scheduling services for trademark publications; monitor the quality or performance by contributing sources and maintain close liaison with U.S. Government Printing Office; and prepare and issue patent grants and periodic publications of patent indexes.

b. The Office of Patent and Trademark Services shall provide the materials and services offered directly to the public, many of which are provided on a fee basis. These shall include recording instruments that transfer property rights to patents and trademarks; furnishing copies of patents, trademark registrations, and office records to examiners, and others in the Office, as well as to the public; providing drafting services; and maintaining appropriate collections of pertinent technical and scientific information such as United States and foreign patents, periodicals, books, and other publications for use by the public. It shall also conduct an initial examination of patent applications for compliance with law and regulation as to form and certain matters of factual content; grant or deny a filing date based on such examination and forward to the Examining Groups those granted a filing date; acknowledge the acceptance or rejection of applications for examination; originate documentation of pending applications; initially assign accepted applications to units of the examining groups for examination; and maintain records on the status and location of all applications.

.03 Administrative service organizations:

a. The Office of Computer Services shall be responsible for providing data processing services to other elements of the Patent Office: This shall include the conduct of systems analysis and equipment evaluation studies directly related to the design and development of systems and programs for applications of computer techniques; preparation or procurement and testing of computer programs, and supplemental data processing services; operation of all general purpose ADP equipment including that which may be approved for use within another organization unit as an integral part of its operations; and maintenance of a comprehensive library of programs, including those developed or procured by other organization units.

b. The Office of Finance shall develop and maintain the financial accounting system of the Patent Office, perform accounting operations for the revenue, trust funds, and appropriation of the Patent Office, including maintenance of general accounts and related fiscal records, preparation of financial statements and reports, audit and certification of vouchers for payment, issuance of deposit account statements, initiation of action to collect amounts due the Patent Office, and administration of the payroll system and related employee accounts; and provide financial advice and opinions.

c. The Office of General Services shall plan and administer a broad Office-wide program of general services, including procurement control; property, space, and facilities management; communications, records, files, mail, and forms management; administrative printing; and clearance of all requirements involving contractual pocurements, including liaison with the Department, in connection therewith.

d. The Office of Personnel shall administer activities relating to recruitment, placement, employee relations, equal employment opportunity programs for employees, training and career development, incentive awards, performance rating, position classification and wage administration, group-management relations, and various employee benefit programs.

.04 The Office of Technology Assessment and Forecast shall continually assess the status of technological activities in all countries; compare inventive activity in the United States relative to other nations; and forecast developments on a world-wide basis.

Effective date: December 15, 1972.

GUY W. CHAMBERLIN, JR.,
Acting Assistant Secretary for Administration.

[FR Doc. 73-321; Filed 1-5-73; 8:45 am]

Published in 38 F.R. 1068, Jan. 8 1973

[907 O.G. 2]

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(210) PATENT OFFICE

Organization and Functions

This order, effective August 1, 1973, amends the material appearing at 38 FR 1068 of January 8, 1973.

Department Organization Order 30-3B, dated December 15, 1972 is hereby amended as follows:

1. SEC. 7. *Offices reporting to the assistant commissioner for legal affairs.*

a. Paragraph .04 is amended to read:

.04 The *Office of Legislation and International Affairs* shall make studies and advise the Commissioner on policy and action concerning matters which may require legislation and on international patent and trademark matters; develop and direct the implementation of related programs; maintain liaison with the Office of the Secretary, the Department of State,

and appropriate congressional committees; and conduct negotiations in technical patent and trademark matters in establishing or implementing international agreements.

b. Paragraph .05 is deleted.

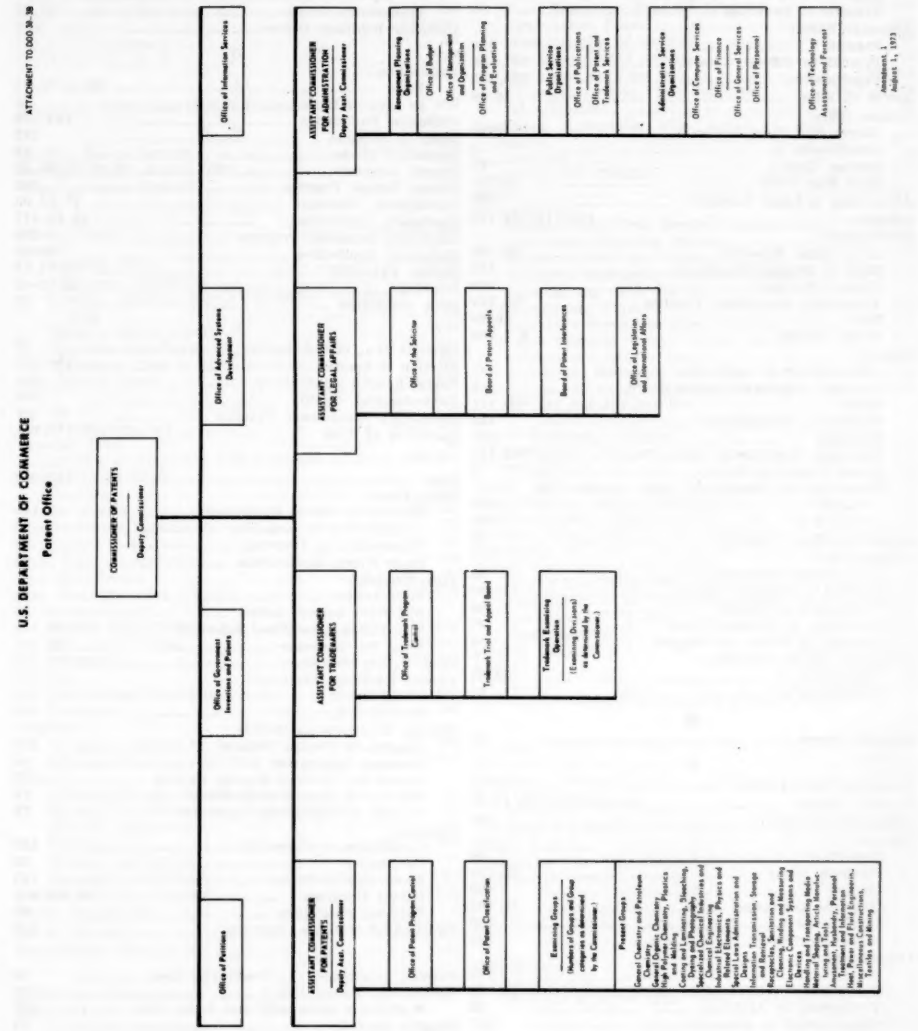
2. The organization chart of December 15, 1972 is superseded by the organization chart attached to this amendment. Copy of the Organization Chart is attached to the original of this document on file in the Office of the Federal Register.

Effective date: August 1, 1973.

HENRY B TURNER,
Assistant Secretary for Administration.

[FR Doc. 73-19292; Filed 9-11-73; 8:45 am]

[915 O.G. 378]


ATTACHMENT TO DOO 30-38
U.S. DEPARTMENT OF COMMERCE
Patent Office
COMMISSIONER OF PATENTS
Deputy Commissioner
Office of Petitions
Office of Government Inventions and Patents
Office of Advanced Systems Development
Office of Information Services
ASSISTANT COMMISSIONER FOR PATENTS
Deputy Asst. Commissioner
Office of Patent Program Control
Office of Patent Classification
Examining Groups
(Numbers of Groups and Group Functions are determined by the Commissioner.)
Patent Groups
General Chemistry and Petroleum Chemistry
General Organic Chemistry
Medicinal Chemistry, Plastics and Molding
Coating and Laminating, Bleaching, Dyes, Fibers and Textiles
Specialized Chemical Industries and Industrial Electronics, Physics and Related Elements
Selective Communication and Detection
Information Transmission, Storage and Retrieval
Receptacles, Sanitation and Cleaning, Heating and Measuring and Testing Devices
Handling and Transporting Webs, Material Shaping, Article Manufacturing and Tools
Assembly and Assembly Personnel, Treatment and Information
Heat, Power and Fluid Engineering, Mechanical Devices, Textiles and Mining
ASSISTANT COMMISSIONER FOR TRADEMARKS
Office of Trademark Program Control
Trademark Trial and Appeal Board
Trademark Examining Operation
(Examining Divisions as determined by the Commissioner.)
ASSISTANT COMMISSIONER FOR LEGAL AFFAIRS
Office of the Solicitor
Board of Patent Appeals
Board of Patent Interferences
Office of Legislation and International Affairs
ASSISTANT COMMISSIONER FOR ADMINISTRATION
Deputy Asst. Commissioner
Management Planning Organization
Office of Budget
Office of Management and Organization
Office of Program Planning and Evaluation
Public Service Organization
Office of Publications
Office of Patent and Trademark Services
Administrative Service Organization
Office of Computer Services
Office of Finance
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Amendment 1
August 1, 1973

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TRADEMARK SECTION

The following is a compilation of the more important notices and rule changes concerning trademarks which have been published in the OFFICIAL GAZETTE *from July 1, 1964 through December 31, 1973. Notices which have been rescinded are not included. Some notices issued prior to July 1, 1964, which have not been specifically rescinded and are still in effect, are not reproduced here.*

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(300) INTERVIEWS INVOLVING TRADEMARK APPLICATION

Interviews frequently result in a better understanding of the issues involved, shorten the prosecution and facilitate disposal of applications.

Interviews for discussion of registrability of the mark of a pending application will not be had before the first official Office action thereon and ordinarily not before filing the first response. Arrangements for an interview should be made in advance so that the Examiner may review the case and be familiar with the details involved.

Interviews on Friday will no longer be prohibited as a matter of policy but all interviews should be set at a time satisfactory to all parties concerned.

A memorandum summarizing the conclusions reached at the interview should be prepared by the Examiner and placed in the application file. The memorandum will be retained in the application file until the prosecution is completed. Such procedure will not, however, relieve the applicant of the responsibility of complying with the requirements of Trademark Rule 2.62.

HORACE B. FAY, JR.,
July 6, 1964. *Assistant Commissioner.*

This supersedes the notice of February 10, 1958, 728 O.G. (TM 1).

[804 O.G. TM 147]

(301) OPPOSITIONS UNDER SECTION 13 OF THE TRADEMARK ACT OF 1946

Section 13 of the Trademark Act of 1946 provides that any person who believes that he would be damaged by the registration of a mark upon the Principal Register may, upon payment of the required fee, file a verified opposition in the Patent Office, stating the grounds therefor, within thirty days after publication under Section 12(a) of the mark sought to be registered.

An unverified opposition may be filed by a duly authorized attorney, but the opposition will be null and void unless verified by the opposer within a reasonable time after such filing to be fixed by the Commissioner.

An opposition will not be accepted unless it complies with the statutory requirements, namely, it must be filed in the Patent Office within thirty days after publication under Section 12(a) of the mark opposed, be accompanied by a fee in the proper amount, must state the grounds therefor and, if filed by the opposer, must be verified.

A request to extend the time for filing an opposition under Rule 2.102 must be received in the Patent Office before the expiration of thirty days from date of publication under Section 12(a) of the mark sought to be registered. The request should specify the period of extension desired and be accompanied by a showing of good cause for the extension requested, but in the event circumstances do not permit submission of the showing of good cause with the request, it must be furnished within ten days after filing the request for extension.

Two or more parties may be joined in opposition to the registration of a mark, but separate fees for each party so joined must be paid. Likewise, a mark may be opposed in each of a plurality of classes, but a separate fee of $25.00 for each class in which opposition is sought, must accompany the opposition. To be complete, oppositions accompanied by fees insufficient to cover each class named in the application, must specify the particular classes in which opposition is sought.

HORACE B. FAY, JR.,
July 15, 1964. *Assistant Commissioner.*

[805 O.G. TM 39]

(302) CHANGE IN FORMAT FOR PUBLISHING TRADEMARKS FOR OPPOSITION

Section 30 of the Trademark Act of 1946 as amended by Public Law 772, 87th Congress, approved October 9, 1962, 76 Stat. 769, provides for the filing of a combined application for the registration of a trademark in more than one class.

The present practice of publishing the mark with pertinent data under each class in which registration is sought results in needless duplication.

Beginning with the issue of November 3, 1964, "Marks Published for Opposition" will be divided into two sections. In Section 1, all marks presented in combined applications

for registration in more than one class will be published with only one reproduction of each mark.

The reproduction of the mark will be followed by the class numbers and titles, and under each class will appear the description of the goods in connection with which the trademark is used. If the date of first use applies to all classes, it will appear following the last class; otherwise, the dates of use will appear after each class.

Trademarks presented in applications for registration in a single class will be published, as in the past, in class order, in Section 2.

The same procedure will be followed in the notice of the issuance of registrations on the Supplemental Register.

EDWIN L. REYNOLDS,
Sept. 18, 1964. *First Assistant Commissioner.*

[807 O.G. TM 51]

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(303) TITLE 37—PATENTS, TRADEMARKS, AND COPYRIGHTS

CHAPTER I—PATENT OFFICE, DEPARTMENT OF COMMERCE

PART 2—RULES OF PRACTICE IN TRADEMARK CASES

Allowance of Application

The following amendment is made, to take effect on publication in the Federal Register. Notice and public procedure and deferment of the time of taking effect are deemed unnecessary in view of the nature of the amendment, which is procedural only.

The purpose of the change is to eliminate the procedural step of signing a trademark application file prior to allowance, which has been found to be burdensome and which is unnecessary since the allowance of the application, subject to possible inter partes proceedings, has already been approved by an Examiner having full signatory authority.

Section 2.82 is amended by striking out the clause "the Examiner will sign the application file to indicate allowance and," so that the section as amended will read as follows:

§ 2.82 *Allowance of application.*

If no opposition is filed within the time permitted (§§ 2.101 and 2.102), or if filed and dismissed, and if no interference is declared, or concurrent use proceeding instituted, the application will be prepared for issuance of the certificate of registration as provided in § 2.151.

(Sec. 1, 66 Stat. 793, 35 U.S.C. 6; 60 Stat. 427, 15 U.S.C. 1057)

Dated: Mar. 23, 1966.

EDWARD J. BRENNER,
Commissioner of Patents.

Approved:
J. HERBERT HOLLOMAN,
Assistant Secretary for Science and Technology.

[F.R. Doc. 66-3785; Filed, Apr. 7, 1966; 8:45 a.m.]

Published in 31 F.R. 5554; Apr. 8, 1966

[826 O.G. TM 61]

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(304) PUBLICATION OF MATERIAL IN "NOTICES" SECTIONS OF PATENTS AND TRADEMARKS OFFICIAL GAZETTE

Effective Jan. 3, 1967, publication of material in the Patent and Trademark "Notices" sections of the OFFICIAL GAZETTE will occur only once.

Dec. 1, 1966.

[833 O.G. TM 108]

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(305) POWERS OF ATTORNEY IN REGISTERED TRADEMARK FILES

On and after February 1, 1967, communications advising of changes in the powers of attorney for registered trademarks will be placed in the registration files, but will not be acknowledged by the Patent Office. The information will thus be available to those who inspect the files, but since these powers of attorney do not directly concern the Patent Office, acknowledgments are not believed to be necessary.

Jan. 30, 1967.

C. M. WENDT,
Director.

[835 O.G. TM 95]

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(306) CHARGES AGAINST DEPOSIT ACCOUNTS UNDER SPECIAL CONDITIONS

The practice as to deposit accounts is hereby extended to include charges against deposit accounts under special conditions. Charges under this practice shall not exceed $50 for each trademark application, registration or notice of opposition.

The Director and the Assistant to the Director of the Trademark Examining Operation are authorized to make a charge against a deposit account provided prior approval, as by telephone, is obtained from the applicant, registrant, attorney or agent. This practice is limited to ex parte appeals to the Trademark Trial and Appeal Board, notices of opposition, affidavits under the provisions of Section 8, and applications for renewal and may be exercised only in emergency situations, such as where a party is unable to file the fee within the statutory period.

When such a charge is made, prior approval will be indicated in the file by identification of the name of the authorizing party, the date and the type of authorization, the purpose for which the charge is made, and the deposit account number.

WILLIAM E. SCHUYLER, JR.,
Commissioner of Patents.

[879 O.G. TM 151 (Oct. 27, 1970)]

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(307) SEPARATION OF THE PATENT AND TRADEMARK SECTIONS OF THE OFFICIAL GAZETTE

Effective February 2, 1971, the OFFICIAL GAZETTE will be separated into two parts to be known as the *Patent Official Gazette* and the *Trademark Official Gazette*. The subscription prices for these publications are as follows:

Patent Official Gazette:
$89.00 per year
22.25 additional for foreign mailing
2.00 per single copy
Trademark Official Gazette:
$17.00 per year
4.25 additional for foreign mailing
.40 per single copy

Also effective February 2, 1971, the OFFICIAL GAZETTE will no longer contain "Decisions in Patent and Trademark Cases." Decisions of the type heretofore found in the "Decisions in Patent and Trademark Cases" are published by non-Federal organizations such as, for example, the Bureau of National Affairs, Inc., 1231 25th St. NW., Washington, D.C. 20037, and West Publishing Co., 50 Kellogg Blvd., St. Paul, Minn. 55102.

Finally, the "Decisions Leaflet" of the OFFICIAL GAZETTE will no longer be supplied as a separate subscription item after January 26, 1971. According to present plans, however, both the PATENT OFFICIAL GAZETTE and the TRADEMARK OFFICIAL GAZETTE will have identical "Patent Office Notices" sections containing notices of the various types heretofore published in the Gazette decision leaflet and Trademark Section. Those notices of particular interest to Patent Office employees will be accumulated and published approximately every fourth week, and distributed separately to employees.

WILLIAM E. SCHUYLER, JR.,
Dec. 29, 1970. *Commissioner of Patents.*

[882 O.G. TM 33]

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(308) PREFACE TO THE TRADEMARK O.G. NOTICES

In September 1970, a Public Advisory Committee for Trademark Affairs was established by the Secretary of Commerce.

The Purpose of this Committee was to advise the Patent Office on ways to increase the efficiency and effectiveness of the administration of the Trademark Act. A report of this Advisory Committee has been received by the Commissioner of Patents. After reviewing the recommendations, although the review is not complete, it has been decided to make certain changes in trademark practice and procedure, and to propose changes in the rules of practice. Beginning with this issue of the OFFICIAL GAZETTE and in subsequent issues as needed, announcements will be published concerning changes in procedures and proposed amendments to the Trademark Rules of Practice.

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WILLIAM E. SCHUYLER, JR.,
June 16, 1971. *Commissioner of Patents.*

Published in 36 F.R. 13232; July 16, 1971

[889 O.G. TM 2]

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(309) REQUEST FOR EXTENSION OF TIME IN WHICH TO OPPOSE

The Patent Office is adopting a new procedure to be used when filing a request for an extension of time in which to oppose under Section 13 of the Trademark Act and Rule 2.102, Trademark Rules of Practice. All requests for extension of time should be submitted in triplicate. The Patent Office will stamp each copy of the request with the action taken and send a copy to the requester and the applicant. The third copy will be entered in the file.

The purpose of this new procedure is to expedite the handling of extensions of time by eliminating the preparation of a formal notice of the disposition of the request. Further, this procedure will provide the applicant with additional information concerning the potential opposition.

WILLIAM E. SCHUYLER, JR.,
June 16, 1971. *Commissioner of Patents.*

Published in 36 F.R. 13232; July 16, 1971

[889 O.G. TM 3]

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(310) RECORDING OF DOCUMENTS AFFECTING TITLE

The Patent Office is liberalizing its policy concerning the recording of documents, other than assignments, which affect title to trademark registrations and applications. Under Rule 2.185 of the Trademark Rules of Practice, instruments affecting title to a trademark registration or application, and licenses of trademarks which are the subject of trademark registrations or applications, will be recorded even though the recording thereof may not serve as constructive notice under Section 10 of the Trademark Act of 1946, as amended (15 U.S.C. 1060).

WILLIAM E. SCHUYLER, JR.,
June 16, 1971. *Commissioner of Patents.*

Published in 36 F.R. 13231; July 16, 1971

[889 O.G. TM 2]

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(311) TRADEMARK EXAMINING PROCEDURE FOR AMENDED APPLICATIONS; REPORTING OLDEST DATES OF AMENDED TRADEMARK APPLICATIONS

Effective immediately, the order in which amendments to trademark applications are examined is changed. Previously, Examiners have usually acted on amended cases in order of filing date of the application which the amendment concerned, i.e., amended cases with the oldest filing date were examined first. Under the new procedure, amended cases will normally be examined in the order in which the amendment or other response is received, i.e., amendments that are received first will normally be examined first.

Effective with this issue of the OFFICIAL GAZETTE (Trademark Section) in order to reflect more accurately the condition of division dockets, the column reporting the date of the oldest amended application in each division has been changed to indicate the date of receipt of the oldest filed amendment. Under this new method of reporting the oldest date of receipt of a filed amendment upon which no action has been taken by an Examiner will be indicated for each division of the Trademark Examining Operation.

RENE D. TEGTMEYER,
July 15, 1971. *Assistant Commissioner.*

[889 O.G. TM 6]

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(312) ESTABLISHMENT OF MANUAL OF TRADEMARK EXAMINING PROCEDURE

Preliminary work has begun on the preparation of a Manual of Trademark Examining Procedure.

Directives on trademark examining procedure will be issued by the Patent Office from time to time and, when appropriate, will be included in the Manual at a later date. The directives will be numbered sequentially and those issued prior to publication of the Manual will be designated as Series 1. These directives will constitute the guidelines for the examination of trademark applications.

Trademark Examining Directives are available through the Superintendent of Documents, Washington, D.C., 20013 at an annual subscription of $1.50 plus 50¢ for foreign mailing.

ROBERT GOTTSCHALK,
July 27, 1971. *Acting Commissioner of Patents.*

[889 O.G. TM 226]

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(313) TRADEMARKS—STATUS INQUIRIES

In order to expedite the handling of inquiries regarding the status of both new and amended applications, the Patent Office has adopted a new procedure. Henceforth, status inquiries should be filed in duplicate and should identify by title and date the last paper known by the applicant to have been filed to the case. Each inquiry should be accompanied by a self-addressed, stamped envelope. The original inquiry will be entered in the file and the duplicate will be marked with a response and returned to the applicant. The date when the next office action can be expected will not be given unless specifically requested.

Status letters have been used by applicants to establish diligence in support of a later petition to revive should the application become abandoned. Under current practice, attorneys have frequently submitted status letters as a matter of course for such purposes. This has proved burdensome both to attorneys and the Patent Office. Until further notice, in new applications, the applicant will be considered to have exercised diligence in connection with a petition to revive an application abandoned for failure to respond to the initial office action if inquiry as to the status of the application is received by the Patent Office within either one of the two following periods, whichever expires later:

a. Eighteen months from the filing date of the application, or

b. A reasonable period after the OFFICIAL GAZETTE (Trademarks) indicates that the filing date of the oldest new case awaiting action in the Division to which the application is assigned is more recent than the filing date of the application.

For amended cases, the applicant will be considered to have exercised diligence if inquiries as to the status of the application are received by the Patent Office within either one of the two following periods, whichever expires later:

a. Eighteen months after filing a response to the examiner's last received action, or

b. A reasonable period after the OFFICIAL GAZETTE (Trademarks) indicates that the date of the oldest amendment filed that is awaiting action in the Division to which the application is assigned is more recent than the date of filing the last amendment to the application.

It should be noted as an exception to the above that status inquiries are totally unnecessary during period(s) of time when an application is suspended pursuant to 37 CFR 2.67.

Applicants are urged not to file status inquires within the first year after filing due to the current backlog of new applications.

Dated: July 28, 1971.

ROBERT GOTTSCHALK,
Acting Commissioner of Patents.

Approved: July 30, 1971.

JAMES H. WAKELIN, JR.,
Assistant Secretary for Science and Technology.

[FR Doc. 71-11532; Filed 8-10-71; 8:48 am]

Published in 36 F.R. 14771, Aug. 11, 1971

[890 O.G. TM 5]

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(314) TITLE 37—PATENTS, TRADEMARKS, AND COPYRIGHTS

CHAPTER 1—PATENT OFFICE, DEPARTMENT OF COMMERCE

PART 1—RULES OF PRACTICE IN PATENT CASES

PART 2—RULES OF PRACTICE IN TRADEMARK CASES

Recognition of Attorneys and Agents, Standards of Conduct, and Patent Application Petitions

These rules changes eliminate present provision for the recognition and registration of firms of attorneys and agents for practice in patent and trademark cases, and permit registered attorneys and agents to file papers in patent applications without the need for filing powers of attorney or authorizations. The changes further establish the Code of Professional Responsibility of the American Bar Association as the standard of conduct for those practicing before the Patent Office insofar as the Code is not inconsistent with Patent Office rules. Other changes eliminate the present requirement for a petition or other express request for a patent and liberalize requirements as to inventor names.

The changes relating to the discontinuance of the recognition and registration of firms are intended to obviate problems incident to such registration such as, for example, the lack of certainty as to the responsibility of individual attorneys and agents for actions taken by registered nonpartnership business entities, such as professional corporations, the problems associated with the rights to firm names and registration numbers upon dissolution or reorganization of firms, and the recognition as "firms" of groups of attorneys or agents, such as parts of corporation organizations, when the attorneys and agents are not in fact associated as partners. Acceptance of papers filed in patent applications by registered attorneys and agents upon a representation that the attorney or agent is authorized to act in a representative capacity is for the purpose of facilitating responses on behalf of applicants in patent applications, and, further, to obviate the need for filing powers of attorney or authorizations of agent in individual applications when there has been a change in composition of law firms or corporate patent staffs. Interviews with a registered attorney or agent not of record will, in view of 35 U.S.C. section 122, be conducted only on the basis of information and files supplied by the attorney or agent.

Provision is made for an applicant to supply an address to receive correspondence from the Patent Office concerning his application, in addition to his residence address, so that the Patent Office may direct mail to any address of applicant's selection, such as a corporate patent department, a firm of attorneys or agents, or an individual attorney, agent, or other person. In connection with patent applications pending upon the effective date of the changes in which a firm is the only representative of record (and in connection with divisions and continuations thereof not requiring execution by the applicant), the address of the firm will be considered to be the correspondence address for the application. Powers of attorney and authorizations of agent in favor of registered individual attorneys and agents will, of course, continue to be recognized and accepted.

The amendments to §§ 1.344 and 2.13 are intended to provide a more definite and uniform standard of conduct for those engaged in practice before the Patent Office than do present rules. The Code of Professional Responsibility of the American Bar Association is incorporated by reference in the rule with a statement as to where copies thereof may be inspected or obtained. The rule specifies that the standards referred to are those set forth in the Code of Professional Responsibility as amended February 24, 1970, and the rule does not, therefore, refer to standards imposed by later amendments of the Code. Any standards in other Patent Office rules which are inconsistent with standards imposed by the Code (as, for example, the limitations in § 1.345(b) on the distribution of professional announcements and the duties imposed by § 1.205(b)) remain in force.

The elimination of the requirement for a petition requesting the grant of a patent and the relaxation of requirements as to the names of applicants are intended to simplify patent application procedures. Section 1.76 is being revoked as redundant in view of revisions in § 1.57.

Notice of proposed rule making regarding revocation of §§ 1.35 and 1.61 and revision of §§ 1.14, 1.21, 1.33, 1.34, 1.36, 1.51, 1.52, 1.57, 1.76, 1.341, 1.343, 1.344, 1.346, 1.347, 2.13, and 2.15 of Title 37, Code of Federal Regulations was published in the Federal Register of January 15, 1971 (36 F.R. 611). Interested persons were given an opportunity to participate in the rulemaking process through submission of comments in writing and at an oral hearing held on March 23, 1971. The rules are being adopted after full and careful consideration of all the material submitted. The departures from the published text reflect certain of the views expressed in the submitted material.

Effective date. This revision shall become effective on the date of its publication in the Federal Register (7-2-71).

In consideration of the comments received and pursuant to the authority contained in Section 6 of the Act of July 19, 1952 (66 Stat. 793; 35 U.S.C. 6), and Section 31 of that Act (66 Stat. 795; 35 U.S.C. 31), Title 37 of the Code of Federal Regulations is hereby amended as follows:

• • • • •

18. Section 2.13 is revised to read as follows:

§ 2.13 *Professional conduct.*

Attorneys and other persons appearing before the Patent Office in trademark cases must conform to the standards of ethical and professional conduct set forth in the Code of Professional Responsibility of the American Bar Association as amended February 24, 1970, insofar as such code is not inconsistent with this part. A copy of the said code is available for inspection in the Office of the Solicitor, U.S. Patent Office, Room 11C04, Building 3, Crystal Plaza, 2021 Jefferson Davis Highway, Arlington, Va. Copies of the code are available upon request to the American Bar Center, 1155 East 60th Street, Chicago, Ill. 60637.

19. Section 2.15 is revised to read as follows:

§ 2.15 *Signature and certificate of attorney or agent.*

Every paper filed by an attorney at law or other person representing an applicant or party to a proceeding in the Patent Office must bear the signature of such attorney at law or other person except those papers which are required to be signed by the applicant or party. The signature of an attorney at law or such other person to a paper filed by him, or the filing of any paper by him, constitutes a certificate that the paper has been read; that its filing is authorized; that to the best of his knowledge, information, and belief there is good ground to support it; and that it is not interposed for delay.

WILLIAM E. SCHUYLER, JR.,
Commissioner of Patents.

Approved:

JAMES H. WAKELIN, JR.,
Assistant Secretary for Science and Technology.

[FR Doc. 71-9387; Filed 7-1-71; 8:49 am]

Published in 36 F.R. 12616; July 2, 1971

[890 O.G. TM 60 (Sept. 14, 1971)]

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(315) STATUS INQUIRIES; AMENDMENT

The notice entitled Status Inquiries which appeared in the Federal Register of August 11, 1971 (36 F.R. 14771-14772), indicated that all status inquiries regarding trademark applications will be entered in the application files. That pro-

cedure will not, however, be followed in all cases, and the first paragraph of the notice has, accordingly, been amended to read as follows:

"In order to expedite the handling of inquiries regarding the status of both new and amended applications, the Patent Office has adopted a new procedure. Henceforth, status inquiries should be filed in duplicate and should identify by title and date the last paper known by the applicant to have been filed in the case. Each inquiry should be accompanied by a self-addressed, stamped envelope. Both the original inquiry and the duplicate will be marked with a response and the duplicate will be returned to the applicant. The original inquiry will be entered in the file only if the applicant has requested an estimated date for the next Office action; otherwise, the original inquiry will be placed in a separate file."

Dated: Sept. 14, 1971.

ROBERT GOTTSCHALK,
Acting Commissioner of Patents.

[FR Doc. 71-14129; Filed 9-23-71; 8:50 a.m.]

Pub. in 36 F.R. 18961, Sept. 24, 1971

[891 O.G. TM 142]

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(316) TITLE 37—PATENTS, TRADEMARKS, AND COPYRIGHTS

CHAPTER I—PATENT OFFICE, DEPARTMENT OF COMMERCE

PART 2—RULES OF PRACTICE IN TRADEMARK CASES

Access to Pending Applications

A proposal was published at 36 F.R. 16194 to amend § 2.27 by deleting the requirement to show good cause in order to obtain access to a pending application file.

After consideration of all comments and suggestions submitted by interested persons, the amendment as proposed is hereby adopted, subject to the following changes:

1. The title of § 2.27 is changed by inserting the word "trademark" after the word "pending."

2. In paragraph (b) of § 2.27 the word "trademark" after the word "pending" is deleted.

Access to a pending application will be granted upon oral request at the office of the Director of the Trademark Examining Operation. The files will be ordered at 2 p.m. each day and will usually be available for inspection by 3 p.m. the same day. Files must be inspected in the presence of office personnel and papers may not be removed without authorization. Copies of the contents of files may be made only in the Trademark Search Room or by the Document Service Branch. Written requests for copies of the contents of application files may be addressed to the Document Service Branch; the cost is 30 cents per page.

The procedure for access to published and registered files and terminated inter partes proceedings will remain unchanged. Access to a published application is granted by request in the Trademark Docket Section. In order to obtain access to a registered file or terminated inter partes proceeding, an order must be placed in the Trademark Docket Section. These files are available either the same day or the morning of the following day.

Effective date. This amendment is effective on the date of its publication in the Federal Register (12-31-71).

ROBERT GOTTSCHALK,
Acting Commissioner of Patents.

December 21, 1971.

JAMES H. WAKELIN, JR.,
Assistant Secretary for Science and Technology.

December 22, 1971.

The text of the revised section is as follows:

§ 2.27 ***Pending trademark application index; access to applications.***

(a) An index of pending applications including the name and address of the applicant, a reproduction or description of the mark, the goods or services with which the mark is used, the class number, the dates of use and the serial number and filing date of the application will be available for public inspection as soon as practicable after filing.

(b) Access to the file of a particular pending application will be permitted prior to publication under § 2.81 upon written request.

(c) Decisions of the Commissioner and the Trademark Trial and Appeal Board in applications and proceedings relating thereto are published or available for inspection or publication.

(d) After a mark has been registered, or published for opposition, the file of the application and all proceedings relating thereto are available for public inspection and copies of the papers may be furnished upon paying the fee therefor.

[F.R. Doc. 71-19801; Filed 12-30-71; 8:45 a.m.]

Published in F.R. 24506, Dec. 31, 1971

[895 O.G. TM 2]

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(317) TITLE 37—PATENTS, TRADEMARKS, AND COPYRIGHTS

CHAPTER I—PATENT OFFICE, DEPARTMENT OF COMMERCE

PART 2—RULES OF PRACTICE IN TRADEMARK CASES

Trademark Application and Drawing Requirements

A proposal was published at 36 F.R. 18002 to amend and revise §§ 2.21-2.23, 2.52, and 2.56. Pursuant to this notice, a number of comments have been received from interested persons. In light of the comments submitted, some changes have been made in the rules as proposed.

An additional subparagraph has been added to § 2.21 requiring that the application state the name of the applicant. In the same section, a paragraph (c) has been added. This paragraph incorporates the substances of proposed § 2.22. Section 2.52 has been revised to state that drawings must be 8 to 8½ inches wide and 11 inches long. In view of the change in § 2.52, § 2.31 has also been revised to make it clear that applications submitted on either letter or legal-size paper are acceptable.

Effective date. This revision shall become effective on *February 1, 1972.* However, as to § 2.52, drawings which comply only with the existing rule will be accepted until March 1, 1972.

1. Section 2.21 is revised to read as follows:

§ 2.21 *Requirements for receiving a filing date.*

(a) Materials submitted as an application for registration of a mark will not be accorded a filing date as an application until all of the following elements are received:

(1) Name of the applicant;

(2) A name and address to which communications can be directed;

(3) A drawing or other identification of the mark sought to be registered;

(4) An identification of goods or services;

(5) At least one specimen or facsimile of the mark as actually used;

(6) A date of first use of the mark in commerce, or a certification or certified copy of a foreign registration if the application is based on such foreign registration pursuant to section 44(e) of the act, or a claim of the benefit of a prior foreign application in accordance with section 44(d) of the act;

(7) The required filing fee for at least one class of goods or services.

Compliance with one or more of the rules relating to the elements specified above may be required before the application is further processed.

(b) The filing date of the application is the date on which all of the elements set forth in paragraph (a) of this section are received in the Patent Office.

(c) If the papers are so defective that they cannot be accepted, the applicant will be notified and the papers and fee held 6 months. If the requirements for receiving a filing date have not been satisfied within such time, the papers and fee will be returned to the applicant or otherwise disposed of; the drawing or fee of an unaccepted application may be transferred to a later application.

§ 2.22 *[Revoked]*

2. Section 2.22 is revoked.

3. Section 2.23 is revised to read as follows:

§ 2.23 *Serial number.*

Applications will be given a serial number as received, and the applicant will be informed of the serial number and the filing date of the application.

4. Section 2.31 is revised to read as follows:

§ 2.31 *Application must be in English.*

The application must be in the English language and plainly written on but one side of the paper. It is deemed preferable that the application be on legal or letter-size paper, typewritten double spaced, with at least a one and one-half inch margin on the left-hand side and top of the page.

5. Section 2.52 is amended by revising paragraph (c) to read as follows:

§ 2.52 *Requirements for drawings.*

* * * * *

(c) *Size of paper and margins.* The size of the sheet on which a drawing is made must be 8 to 8½ inches wide and 11 inches long. One of the shorter sides of the sheet should be regarded as its top. When the figure is longer than the width of the sheet, the sheet should be turned on its side with the top at the right. The size of the mark must be such as to leave a margin of at least 1 inch on the sides and bottom of the paper and at least 1 inch between it and the heading.

* * * * *

6. Section 2.56 is revised to read as follows:

§ 2.56 *Specimens.*

The application must include five specimens of the trademark as actually used on or in connection with the goods in commerce. The specimens shall be duplicates of the actual used labels, tags, or containers, or the displays associated therewith or portions thereof, when made of suitable flat material and of a size not to exceed 8½ inches wide and 13 inches long.

Dated: January 11, 1972.

RICHARD A. WAHL,
Acting Commissioner of Patents.

Approved:

JAMES H. WAKELIN, JR.,
Assistant Secretary
for Science and Technology.

[FR Doc. 72-924; Filed 1-20-72; 8:48 am]

Published in 37 FR 931; Jan. 21, 1972

[895 O.G. TM 193]

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(318) INITIAL PROCESSING OF APPLICATIONS

On February 1, 1972, the operations of the Trademark Application Section of the Patent Office will be reorganized. The purpose of the reorganization is to provide the public and applicants with more current information concerning newly filed applications.

The prompt initial processing of trademark applications is necessary in order to fulfill one of the main Patent Office functions, that of producing a record, accessible to the public, of new trademark activity to facilitate the clearance of new marks for use, determine the registrability of proposed marks, and avoid conflicts with the rights of others. In order to maintain a record of marks applied for which reflects the most current information available to the Office concerning them, the early processing of drawings in order to have them placed in the search room is considered as a first priority. The processing of these drawings includes the assignment of serial numbers, initial classification, duplication of the drawing and the forwarding of copies of the drawing to the search room. Other functions which are necessary in the processing of applications, such as the processing and mailing of filing receipts, are secondary to the processing of drawings.

In past years, there have been delays in processing applications and forwarding application drawings to the search room. These delays have varied from several weeks to several months. In view of the importance, both to applicants and the public, of recording essential information concerning newly filed applications as quickly as possible, a reorganization of the workflow in the Application Section is being effected.

There is no change in the processing of applications through the mail room and finance branch to the Application Section. However, under the new plan, upon receipt in the Trademark Application Section, all applications will be stamped with a serial number, and the drawing of the mark will be reproduced immediately and placed in the search file. This processing will occur as soon as the application files reach the Application Section. Such procedures as determining whether or not an application will receive a filing date, preparation of the file jackets, and mailing of the filing receipt will take place at a later time.

Applicants who wish to be notified promptly of the date their papers were received in the office and their serial number, may send two self-addressed postcards with their application papers. The mail room will stamp both postcards with the date of receipt and return one to the applicant; the second postcard will be stamped with the serial number and forwarded to the applicant from the Application Section. The postcards should contain the applicant's name and the trademark which is the subject of the application. When more than one set of application papers are forwarded under one cover, postcards should be attached to each set of papers for which a receipt is desired.

Under the new system of processing application papers, your particular attention is directed to the following changes as compared to the present procedure.

1. Application drawings will be placed in the public search file prior to the mailing of the filing receipt.

2. By using the postcard system described above, applicants will be notified sooner of the date of receipt of their papers and the serial number of their application. Applicants are encouraged to use the postcard system.

3. Additional papers sent in by the applicant or attorney should be identified by serial number, thereby enabling the office to process these papers quickly.

4. When an application is accompanied by a petition to the Commissioner under § 2.146, the petition will not be considered until processing by the Application Section is complete.

Effective date. The procedure outlined in this notice will become effective February 1, 1972.

RICHARD A. WAHL,
Acting Commissioner of Patents.

January 11, 1972.

Approved:

JAMES H. WAKELIN, JR.,
Assistant Secretary for
Science and Technology.

[FR Doc. 72-925; Filed 1-20-72; 8:48 am]

Published in 37 FR 942; Jan. 21, 1972

[895 O.G. TM 193]

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(319) IDENTIFICATION OF GOODS AND SERVICES IN TRADEMARK APPLICATIONS—(REPRINT OF NOTICE AND AMENDMENT)

Effective immediately, the Alphabetical List of Goods and Services which appears in the volume entitled "International Classification of Goods and Services to Which Trade Marks Are Applied" (published by the World Intellectual Property Organization (WIPO)) is adopted as a general guideline for determining the degree of particularity of identification of goods and services required in trademark applications.

Terms which appear in the International Classification listing will generally be accepted as proper identifications of goods and services. The use in the listing of more specific identifications indented below the heading term does not necessarily preclude acceptability of that heading. For example, the International Classification lists, as Item A407, *Ammunition,* followed by specific types of ammunition, as Items A408 and A409 and A410. "Ammunition" will be accepted as an identification in accordance with *In re Dynamit Nobel AG,* 169 USPQ 499 (TTAB, 1971). However, if the more specific term is used whenever appropriate, prosecution of the application may be shortened since the possibility of a requirement of greater particularity (see below) is reduced.

Greater particularity than is set forth by the terms in the International Classification listing may not be required by the Examiner in the absence of a clear need therefor. Typical

illustrations of clear need can be found in the following situations:

(1) The broad term includes items which are classified in more than one class. (For example, "artists' materials.")

(2) The broad term is too indefinite for proper examination. (For example, "metallic parts.")

(3) (*a*) The identification is inconsistent with the goods or services disclosed by the specimens.

(*b*) The ordinary meaning of the identification is at variance with the goods or services disclosed by the specimens or the record. (For example, "decalcomanias" are not adequately identified by the term "publications." See also *Ex parte Consulting Publishing Co.*, 115 USPQ 240.)

(4) Wording included in the mark requires limitation of the identification. (For example, "beer" may not be included in the identification where the mark is "Newark 'Olde Town' Ale" (*Ex parte Consumers Brewing Co.*, 55 USPQ 426).)

On the other hand, some situations do *not* constitute clear need, as illustrated by the following:

(1) The existence of a decision holding that a likelihood of confusion exists in relation to items which are narrowly identified does not in itself constitute a clear need to require amendment of a broad identification to the more specific items mentioned in the decision.

(2) If the identification is understood when read in association with the title of the class in which it is placed and is otherwise satisfactory, further qualifying amendment should not be required. (For example, "mufflers" in the clothing class would not require further modification to indicate that articles of clothing are intended; similarly the term "house organ" in the class for printed publications would not need further qualification.)

In a few instances, the terminology in the International Classification of Goods and Services is not in common usage in the United States. Where this occurs, the term more commonly used in this country should be selected.

The English edition of the "International Classification of Goods and Services to Which Trade Marks Are Applied" can be ordered from:

Sales Branch, The Patent Office
Block C, Station Square House
St. Mary Cray, Orpington, Kent, England

Certain modifications and additions to the Classification have been published as supplements and are also available from the British Office.

We have been advised by the British Patent Office that the only acceptable methods of payment are by International Money Order or banker's draft, payable in sterling and drawn on a bank in the United Kingdom. Orders for the International Classification and for the supplements can be made by remittance in the following amount(s):

International Classification	50 pence
Nov. 15, 1967, supplement	5 pence
Mar. 18, 1970, supplement	Free
Mar. 3, 1971, supplement	10 pence
Total cost (including postage by surface mail)	65 pence
Additional charge for postage by air mail	1 pound 55 pence
Total cost by airmail	2 pounds 20 pence

Orders should be sent directly to:

Sales Branch, The Patent Office, Block C.
Station Square House, St. Mary Cray,
Orpington, Kent, England

RENE D. TEGTMEYER,
Assistant Commissioner for Appeals, Legislation and Trademarks.

Date: Jan. 13, 1972.

[895 O.G. TM 54]

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(320) TRADEMARK OFFICE ACTIONS

Effective Apr. 1, 1972, trademark applicants or their attorneys will be provided with only one carbon copy of any office action, and the mailing of an additional carbon copy will be discontinued.

This change is consistent with the current practice in the patent examining operations and should result in greater efficiency in the preparation and mailing of office actions.

ROBERT GOTTSCHALK,
Feb. 7, 1972. *Commissioner of Patents.*

[895 O.G. TM 238]

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(321) TITLE 37—PATENTS, TRADEMARKS, AND COPYRIGHTS

CHAPTER I—PATENT OFFICE, DEPARTMENT OF COMMERCE

PART 2—RULES OF PRACTICE IN TRADEMARK CASES

Interferences

A proposal was published at 36 F.R. 18002 to amend, revise, or redesignate §§ 2.27, 2.61, 2.80–2.82, 2.91, 2.92, 2.98, 2.101, and 2.103. Pursuant to this notice, a number of comments have been received from interested persons, and due consideration has been given to all matter presented. Only editorial changes have been made in the rules as proposed.

Effective date. This revision shall become effective on March 1, 1972, and will apply to all applications except those in which a notice of publication was mailed prior to March 1, 1972.

§ 2.27 [*Amended*]

1. Section 2.27 is amended by changing "2.81" in paragraph (b) to read "2.80."

§ 2.61 [*Amended*]

2. Section 2.92(c) is redesignated as § 2.61(c).

3. Section 2.81 is redesignated as § 2.80 and revised to read as follows:

§ 2.80 *Publication for opposition.*

If, on examination or reexamination of an application for registration on the Principal Register, it appears that the applicant is entitled to have his mark registered, the mark will be published in the OFFICIAL GAZETTE for opposition. The mark will also be published in the case of an application to be placed in concurrent use proceedings, if otherwise registrable.

§§ 2.81, 2.82 [*Redesignated*]

4. Sections 2.82 and 2.83 are redesignated as §§ 2.81 and 2.82, respectively.

5. A new § 2.83 is added and reads as follows:

§ 2.83 *Conflicting marks.*

(a) Whenever an application is made for registration of a mark which so resembles another mark or marks pending registration as to be likely to cause confusion or mistake or to deceive, the mark with the earliest effective filing date will be published in the OFFICIAL GAZETTE for opposition if eligible for the Principal Register, or issued a certificate of registration if eligible for the Supplemental Register. A notice will be sent, if practicable, to the applicants involved informing them of the publication or issuance of the earliest filed mark.

(b) In situations in which conflicting applications have the same effective filing date, the application with the earliest date of execution will be published in the OFFICIAL GAZETTE for opposition or issued on the Supplemental Register. A notice will be sent, if practicable, to the applicants involved informing them of the publication or issuance of the application with the earliest date of execution.

(c) Action on the conflicting application which is not published in the OFFICIAL GAZETTE for opposition or not issued on the Supplemental Register will be suspended by the Examiner of Trademarks until the published or issued application is registered or abandoned.

6. The heading for §§ 2.91–2.99 entitled "Interferences" is revised to read "Interferences and Concurrent Use Proceedings."

7. Section 2.91 is revised to read as follows:

§ 2.91 *Interferences.*

(a) An interference will not be declared between two applications or between an application and a registration except upon petition to the Commissioner. Interferences will be declared by the Commissioner only upon a showing of extraordi-

nary circumstances which would result in a party being unduly prejudiced without an interference. In ordinary circumstances, the availability of an opposition or cancellation proceeding to the party will be deemed to remove any undue prejudice.

(b) Registrations and applications to register on the Supplemental Register, registrations under the Act of 1920, and registrations of marks the right to use of which has become incontestable are not subject to interference.

8. Section 2.92 is revised to read as follows:

§ 2.92 *Preliminary to interference.*

Before the declaration of an interference, the marks which are to form the subject matter of the controversy must have been decided to be registrable by each party except for the interfering mark.

9. Section 2.98 is revised to read as follows:

§ 2.98 *Adding party to interference.*

If, during the pendency of an interference, another case appears involving substantially the same registrable subject matter, the Examiner of Trademarks may request the suspension of the interference for the purpose of adding said case. Such suspension will be granted as a matter of course if no testimony has been taken. If any testimony has been taken or is about to be taken, the case will not be added except upon approval of a member of the Trademark Trial and Appeal Board. If the case is not added, the Examiner of Trademarks may suspend action on such case pending termination of the interference proceeding.

§ 2.101 [*Amended*]

10. Section 2.101 is amended by changing "2.81," to read "2.80."

§ 2.103 [*Amended*]

11. Section 2.103 is amended by changing "2.81" in the second sentence to read "2.80."

Dated: February 2, 1972.

ROBERT GOTTSCHALK,
Commissioner of Patents.

Approved:

JAMES H. WAKELIN, JR.,
Assistant Secretary for Science and Technology.

[FR Doc. 72-1863; Filed 2-8-72; 8:46 am]

Pub. 37 F.R. 2880, Feb. 9, 1972

[896 O.G. TM 2]

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(322) TITLE 37—PATENTS, TRADEMARKS AND COPYRIGHTS

CHAPTER I—PATENT OFFICE, DEPARTMENT OF COMMERCE

PART 2—RULES OF PRACTICE IN TRADEMARK CASES

Miscellaneous Amendments

A proposal was published at 36 F.R. 19315 to revise §§ 2.54, 2.67, 2.87, 2.88, and 2.187. Pursuant to this notice, comments have been received from interested persons. Full consideration has been given to all matter presented and changes in the text of the original proposal have been made in view thereof.

Section 2.54 is being revised to permit the Patent Office to accept substitute drawings in appropriate situations.

The revision of § 2.67 clarifies the situations in which an examiner may suspend action on an application.

Sections 2.87 and 2.88 are being revised to state that both goods and services may be the subject of a single application or certificate of registration in accordance with section 30 of the Trademark Act of 1946. Additionally, § 2.87 requires five specimens be submitted for each class.

The revision to § 2.187 insures that the certificate of registration issues to the current owner of the mark.

Effective date. This revision shall become effective March 17, 1972.

In consideration of the foregoing and pursuant to the authority contained in section 41 of the Act of July 5, 1946 (60 Stat. 440; 15 U.S.C. 1123) and section 6 of the Act of July 19, 1952 (66 Stat. 793; 35 U.S.C. 6), Part 2 of Chapter I of Title 37 of the Code of Federal Regulations is hereby amended as follows:

1. Section 2.54 is revised to read as follows:

§ 2.54 *Informal drawings.*

A drawing not in conformity with §§ 2.51 to 2.53 may be accepted for purpose of examination, but the drawing must be corrected or a new one furnished, as required, before the mark can be published or the application allowed. The necessary corrections will be made by the Patent Office upon applicant's request and at his expense.

2. Section 2.67 is revised to read as follows:

§ 2.67 *Suspension of action by the Patent Office.*

Action by the Patent Office may be suspended for a reasonable time for good and sufficient cause. The fact that a proceeding is pending before the Patent Office or a court which is relevant to the issue of registrability of the applicant's mark, or the fact that the basis for registration is, under the provisions of Section 44(e) of the Act, registration of the mark in a foreign country and the foreign application is still pending, will be considered prima facie good and sufficient cause. An applicant's request for a suspension of action under this section filed within the 6-month response period (see § 2.62) may be considered responsive to the previous office action. The first suspension is within the discretion of the Examiner of Trademarks and any subsequent suspension must be approved by the Commissioner.

3. Section 2.87 is revised to read as follows:

§ 2.87 *Combined applications.*

An application also may be filed to register the same mark for any or all of the goods and/or services upon or in connection with which the mark is actually used and which fall within a plurality of classes. However, dates of use for each class, five specimens for each class, and a fee equaling the sum of the fees for filing an application in each class are required. A single certificate of registration for the mark may be issued.

4. Section 2.88 is revised to read as follows:

§ 2.88 *Applications may be combined.*

(a) When several applications have been filed by the same applicant for registration on the same register of a mark shown in identical form on the drawings for goods and/or services in different classes and each of the applications has been allowed, a single certificate based on such applications may be issued. A request for the issuance of a consolidated certificate must be made of record in each of the applications involved prior to the allowance of any of the applications.

(b) The issuance of any original certificate may be suspended upon request of the applicant, for a period not exceeding 6 months, to permit such consolidation.

5. Section 2.187 is revised to read as follows:

§ 2.187 *Certificate of registration may issue to assignee.*

The certificate of registration may be issued to the assignee of the applicant provided the assignment is recorded in the Patent Office at least 10 days before the application is allowed, and written notice of the recording of the assignment and the address of the assignee is made of record in the application file by the applicant or assignee.

Dated: February 14, 1972.

ROBERT GOTTSCHALK,
Commissioner of Patents.

Approved:

JAMES H. WAKELIN, JR.,
Assistant Secretary for Science and Technology.

[FR Doc. 72-2684; Filed 2-23-72; 8:46 a.m.]

Published in 37 F.R. 3897, Feb. 24, 1972

[896 O.G. TM 130]

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(323) TRADEMARK MANUAL OF EXAMINING PROCEDURE

Work is in progress on a Manual of Trademark Examining Procedure which is being designated in brief as "TMEP." The preliminary material for the Manual consists of directives which are being prepared and issued at intervals. Each directive is devoted to a particular procedure in the trade-

mark examining process, and the directives constitute official guidelines for the examination of trademark applications.

Ten directives have been issued to date.

Trademark Examining Directives can be ordered from the Superintendent of Documents, United States Government Printing Office, Washington, D.C., 20402, at an annual subscription of $1.50, plus 50¢ for foreign mailing.

(See original announcement dated July 27, 1971 in the OFFICIAL GAZETTE of August 31, 1971, vol. 889, No. 5.)

ROBERT GOTTSCHALK,
Commissioner of Patents.

Feb. 29, 1972.

[897 O.G. TM 2]

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(324) PETITION TO MAKE TRADEMARK APPLICATIONS SPECIAL

The practice of expediting the prosecution of new trademark applications on request of the applicant (accelerated prosecution) was rescinded, effective Aug. 1, 1971 (36 F.R. 13231, July 16, 1971; 825 O.G. 2). This action was taken after a careful study of the practice, including a recommendation of the Public Advisory Committee for Trademark Affairs that the Patent Office terminate accelerated prosecution of trademark applications. The study considered both the effect of the procedure on the workload of the Trademark Operations and the broader interest of examining trademark applications in an order which is equitable to all applicants.

Since the termination of this practice, the Office has experienced some increase in the number of petitions requesting the Commissioner to invoke his supervisory authority pursuant to Rule 2.146 in order to advance the examination of applications out of their regular order. This was to be expected since applicants who might have been able to show special circumstances entitling them to advanced examination could previously achieve this special treatment without resorting to a petition. However, some of the petitions now being received are not considered sufficient to justify the extraordinary relief of invoking the supervisory authority of the Commissioner for the purpose of advancing the applications out of their regular order.

In particular, a number of such petitions have been based on the ground that the applicant is about to embark on an advertising campaign or to commit advertising or promotional expenditures in which the mark applied for is material. Such a ground is not considered to constitute appropriate circumstances justifying the advancement of the application out of its regular turn and the petitions based on such ground have been and will continue to be denied. The principal reason for the denial is that these circumstances are applicable to a substantial portion of the trademark applications filed in the Patent Office. The supervisory authority of the Commissioner should be exercised only where an extraordinary reason for such action has been disclosed. See *Anderson & Dyer* v. *Lowry*, 89 O.G. 1861, 1899 C.D. 230, and *Wilputte* v. *Van Ackeren*, 103 USPQ 235. Thus, the extraordinary remedy of invoking the supervisory authority of the Commissioner is not considered appropriate under these circumstances.

In the interest of equitable treatment of all applicants, the policy of the Office in granting such petitions will be restricted to those cases in which particular and very special circumstances exist, such as a demonstrable possibility of loss of substantial rights, rather than circumstances which would be equally applicable to a large number of other applicants for trademark registration.

ROBERT GOTTSCHALK,
Commissioner of Patents.

Date: Mar. 13, 1972.

[897 O.G. TM 2]

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(325) TITLE 37—PATENTS, TRADEMARKS, AND COPYRIGHTS

CHAPTER I—PATENT OFFICE, DEPARTMENT OF COMMERCE

PART 2—RULES OF PRACTICE IN TRADEMARK CASES

Trademark Inter Partes Procedure

A proposal was published at 36 F.R. 18002 to revise, amend, redesignate, or revoke §§ 2.99, 2.104, 2.112, 2.117, 2.119, 2.120, 2.122–2.125, and 2.127–2.129 of the Rules of Practice in Trademark Cases. Pursuant to the notice, written comments have been received and a public hearing was held October 22, 1971. Full consideration has been given to all matter presented and changes in the text of the original proposal have been made in view thereof.

Amendments to the present text of the rules are described below. In cases where the amendment differs from that set forth in the notice of proposed rule making, that change is also described below.

Sections 2.104 and 2.112 are being revised by adopting langage from the Federal rules requiring a short and plain statement showing how the party would be damaged. The proposal required a statement "tending to show why" the party would be damaged.

Section 2.117 is being redesignated as § 2.116 and is being revised to clarify the applicability of the Federal Rules of Civil Procedure to Patent Office proceedings.

A new § 2.117 authorizing suspension of proceedings by the Trademark Trial and Appeal Board when the parties are engaged in civil litigation which may be dispositive of the case, has been added. The new rule gives the Board discretion in matters of suspension whereas the proposed rule required a mandatory suspension.

Section 2.119 is being amended by incorporating the substance of § 1.248 in a new paragraph.

Section 2.120 is being revised to adopt the Federal Rules of Civil Procedure insofar as they are applicable to Patent Office proceedings. The numbers of the applicable Federal rules are not listed since they are incorporated by reference in § 2.120. For example, § 2.120(a)(3) as adopted does not refer to Federal Rule 32 which governs use of discovery depositions.

Section 2.120(a) sets forth restrictions on deposition procedures, discovery of a foreign party and use of discovery depositions.

Existing § 2.120(b) is being deleted and the proposed paragraph is not being adopted. Rule 36 of the Federal Rules of Civil Procedure will govern requests for admissions. A new paragraph (b) governing use of admissions and answers to interrogatories is being adopted.

Existing § 2.120 paragraphs (c) through (e) are being deleted.

Section 2.120(f) is also deleted and proposed § 2.120(c) is not being adopted. Rule 33 of the Federal Rules of Civil Procedure will govern the interrogatory practice. It is believed that the Federal rule will provide uniformity in practice and a body of law which will serve as a guideline to both attorneys and the Board. Some comments were received, however, which expressed a preference for limited interrogatories. In view of such comments, the Office plans to evaluate on a continuing basis the effectiveness and utilization of Federal Rule 33. If instances arise in which Rule 33 does not appear to be fully satisfactory, it may be that consideration will be given to a more limited practice.

A new § 2.120(c) entitled "Failure to Make Discovery: Sanctions" has been added.

Section 2,122(b) is being revised to state that before a pleaded registration will be received in evidence, two copies of the registration showing its status and title or an order for such copies must accompany the opposition or petition to cancel.

Section 2.123(c) relating to printed publications and official records, is being redesignated as § 2.122(c) and revised to incorporate § 1.282 (Patent Rule 282).

A new § 2.122(d) is being added and incorporates the substance of § 1.283 (Patent Rule 283).

Section 2.123 has been completely revised to incorporate the provisions of §§ 1.273–1.281, 1.285, and 1.286 (Patent Rules 273–281, 285, and 286). Portions of the Patent Rules which are not applicable to trademark practice have been omitted and in some instances the Federal Rules of Civil Procedure apply. A few changes have been made in this section as originally proposed; they are as follows:

The title of § 2.123 is being amended by inserting the word "trial" before "testimony."

Proposed § 2.123(e)(5) is being revised to permit a witness to sign a deposition before any officer authorized to administer oaths.

Proposed § 2.123(f)(5) is being deleted and § 2.123(f)(6) is being redesignated as § 2.123(f)(5).

Section 2.124(b) is being amended to require testimony by written questions to be prepared with each answer preceded by its corresponding question.

Section 2.124a is being revoked. Testimony in foreign countries will be covered in § 2.124(d) which provides that such testimony will be taken by depositions upon written questions.

Reference numbers in § 2.125 have been changed and the reference to "the original transcript" in the second sentence of paragraph (a) is being changed to read "the certified transcript."

Section 2.127(a) provides that the Trademark Trial and Appeal Board may treat a motion as conceded when a party fails to file a brief in opposition to the motion. Sections 2.127 (b) and 2.129(c) are amended by adding a sentence requiring briefs in opposition to petitions for reconsideration to be filed within 15 days.

Section 2.128(b) includes certain changes with respect to the form required for briefs.

In consideration of the comments and pursuant to the authority contained in section 41 of the Act of July 5, 1946 (60 Stat. 440; 15 U.S.C. 1123) and section 6 of the Act of July 19, 1952 (66 Stat. 793, 35 U.S.C. 6), Part 2 of Chapter I of Title 37 of the Code of Federal Regulations is hereby amended as follows:

1. In § 2.99, a new paragraph (d) is added and reads as follows:

§ 2.99 *Application to register as concurrent user.*

* * * * *

(d) When concurrent registration is sought on the basis of a court determination of the rights of the parties to use the marks in commerce, the application shall be examined by the Examiner of Trademarks. If the applicant is entitled to registration subject only to the concurrent lawful use of a party to the court proceeding, the Examiner of Trademarks may publish or allow the application, provided the court decree specifies the rights of the parties.

2. Section 2.104 is revised to read as follows:

§ 2.104 *Contents of opposition.*

The opposition must set forth a short and plain statement showing how the opposer would be damaged by the registration of the opposed mark and state the grounds for opposition. A duplicate copy of the opposition including exhibits shall be filed.

3. Section 2.112 is revised to read as follows:

§ 2.112 *Petition for cancellation.*

The petition to cancel, which must be verified, or include a declaration in accordance with § 2.20, must set forth a short and plain statement showing how the petitioner is or will be damaged by the registration, state the grounds for cancellation, and indicate the respondent party to whom notice shall be sent. A duplicate copy of the petition, including exhibits, shall be filed with the petition. Applications to cancel different registrations owned by the same party may be joined in one petition when appropriate, but the fee for each application to cancel a registration must accompany the petition.

4. Section 2.117 is redesignated as § 2.116 and paragraph (a) is revised as amended, § 2.116 reads as follows:

§ 2.116 *Federal Rules of Civil Procedure.*

(a) Except as otherwise provided, and wherever applicable and appropriate, procedure and practice in inter partes proceedings shall be governed by the Federal Rules of Civil Procedure.

* * * * *

5. A new § 2.117 is added and reads as follows:

§ 2.117 *Suspension of proceedings.*

Whenever it shall come to the attention of the Trademark Trial and Appeal Board that parties to a pending case are engaged in a civil action which may be dispositive of the case, proceedings before the Board may be suspended until termination of the civil action.

6. Section 2.119 is amended as follows: Paragraph (a) is revised, paragraph (b) is redesignated as paragraph (c), and a new paragraph (b) is added. As amended, § 2.119 reads as follows:

§ 2.119 *Service of papers.*

(a) Every paper filed in the Patent Office in inter partes cases, including notice of appeal, must be served upon the other parties except the notice of interference (§ 2.93), the notice of opposition (§ 2.105), the petition for cancellation (§ 2.113), and the notice of a concurrent use proceeding (§ 2.99), which are mailed by the Patent Office. Proof of such service must be made before the paper will be considered by the Office. A statement signed by the attorney or agent, attached to or appearing on the original paper when filed, clearly stating the date and manner in which service was made will be accepted as prima facie proof of service.

(b) Service of papers must be on the attorney or agent of the party if there be such or on the party if there is no attorney or agent, and may be made in either of the following ways: (1) by delivering a copy of the paper to the person served; (2) by leaving a copy at the usual place of business of the person served, with someone in his employment; (3) when the person served has no usual place of business, by leaving a copy at his residence, with a member of his family over 14 years of age and of discretion; (4) transmission by first-class mail, which may also be certified or registered. Whenever it shall be satisfactorily shown to the Commissioner that none of the above modes of obtaining service or serving the paper is practicable, service may be by notice published in the OFFICIAL GAZETTE.

(c) When service is made by mail, the date of mailing will be considered the date of service. Whenever a party is required to take some action within a prescribed period after the service of a paper upon him by another party and the paper is served by mail, 5 days shall be added to the prescribed period.

7. Section 2.120 is revised to read as follows:

§ 2.120 *Discovery procedure.*

The provisions of the Federal Rules of Civil Procedure relating to discovery shall apply in inter partes trademark cases except as otherwise provided in this section. The Trademark Trial and Appeal Board will specify the closing date for the taking of discovery.

(a) *Depositions for discovery*—(1) *Procedure.* The deposition of a person shall be taken in the Federal judicial district where he resides or is regularly employed. The responsibility for securing the attendance of a propose deponent, other than a party or anyone who at the time set for the taking of the deposition was an officer, director, or managing agent of a party, or a person designated under Rule 30(b)(6) or 31(a) of the Federal Rules of Civil Procedure to testify on behalf of a party, rests wholly with the interested party. See 35 U.S.C. 24.

(2) *Discovery of foreign party.* The discovery deposition of a party or an officer, director, or managing agent of a party, or a person designated under Rule 30(b)(6) or 31(a) of the Federal Rules of Procedure to testify on behalf of a party, domiciled in a foreign country may be taken in the manner prescribed by § 2.124.

(3) *Use of discovery depositions.* A discovery deposition shall not be considered as part of the record in the case unless the party offering the deposition, or any part thereof, files the same before the close of his testimony period (testimony-in-chief or rebuttal as appropriate) and also files a notice of reliance thereon. A discovery deposition should not be filed in the Patent Office in the absence of a notice of reliance. Objections, including any made during the examination, will be considered only if made or renewed at the hearing.

(b) *Use of admission or answer to interrogatory.* No admission or answer to an interrogatory shall be considered as part of the record in the case unless the party propounding the request for admission or interrogatory files, before the close of his testimony period (testimony-in-chief or rebuttal, as appropriate), a copy of the admission and the request therefor and/or a copy of the interrogatory and its answer and also files a notice of reliance thereon.

(c) *Failure to make discovery: Sanctions.* If any party fails or refuses to answer any proper question in taking discovery depositions or fails or refuses to answer any proper question propounded by interrogatories or fails or refuses to comply with a request to produce and permit the inspection and copying of designated things, the party seeking discovery

may apply to the Trademark Trial and Appeal Board for an order compelling discovery. If a party or an officer, director, or managing agent of a party, or a person designated under Rule 30(b)(6) or 31(a) of the Federal Rules of Civil Procedure to testify on behalf of a party, fails to obey an order to provide or permit discovery, the Trademark Trial and Appeal Board may strike out all or any part of any pleading of that party, dismiss the action or proceeding, or deny any part thereof, enter judgment as by default against that party or take any such other action as may be deemed appropriate.

8. In § 2.122, paragraph (b) is revised and new paragraphs (c) and (d) are added. As amended, those paragraphs of § 2.122 read as follows:

§ 2.122 *Matters in evidence.*

* * * * *

(b) A registration of the opposer or petitioner pleaded in an opposition or petition to cancel will be received in evidence and made part of the record if two copies showing status and title of the printed registration or an order for such copies accompany the opposition or petition.

(c) Printed publications, such as books and periodicals, available to the general public in libraries or of general circulation, and official records, if competent evidence and pertinent to the issue, may be introduced in evidence by filing in the Patent Office a notice to that effect during the period for the taking of the testimony of the party (during the period for taking of testimony-in-chief if such matters are not in rebuttal), specifying the record or the printed publication, the page or pages to be used, indicating generally its relevance, and accompanied by the record or authenticated copy or the printed publication or a copy. When a copy of an official record of the Patent Office is filed, it need not be a certified copy. The notice and copy of the record or publication must be served on each of the other parties.

(d) Upon motion duly made and granted, testimony taken in another proceeding, or testimony taken in a suit between the same parties or those in interest, may be used in a proceeding, so far as relevant and material, subject, however, to the right of any contesting party to recall or demand the recall of witnesses whose testimony has been taken, and to take other testimony in rebuttal of the testimony.

§ 2.123 *Trial testimony in inter partes cases.*

(a) Manner of taking testimony: Testimony of witnesses in inter partes cases may be taken (1) by depositions upon oral examination as provided by this section, or (2) by depositions upon written questions in accordance with the requirements of this section and § 2.124.

(b) Stipulations: If the parties so stipulate in writing, depositions may be taken before any person authorized to administer oaths, at any place, upon any notice, and in any manner and when so taken may be used like other depositions. By agreement of the parties, the testimony of any witness or witnesses of any party, may be submitted in the form of an affidavit by such witness or witnesses. The parties may stipulate what a particular witness would testify to if called, or the facts in the case of any party may be stipulated.

(c) Notice of examination of witnesses: Before the depositions of witnesses shall be taken by a party, due notice in writing shall be given to the opposing party or parties, as provided in § 2.119(b), of the time when and place where the depositions will be taken, of the cause or matter in which they are to be used, and the name and address of each witness to be examined; if the name of a witness is not known, a general description sufficient to identify him or the particular class or group to which he belongs, together with a satisfactory explanation, may be given instead. Neither party shall take depositions in more than one place at the same time, nor so nearly at the same time that reasonable opportunity for travel from one place of examination to the other is not available.

(d) Persons before whom depositions may be taken: Depositions may be taken before persons designated by Rule 28 of the Federal Rules of Civil Procedure.

(e) Examination of witnesses:

(1) Each witness before testifying shall be duly sworn according to law by the officer before whom his deposition is to be taken.

(2) The deposition shall be taken in answer to questions, with the questions and answers recorded in their regular order by the officer, or by some other person (who shall be subject to the provisions of Rule 28 of the Federal Rules of Civil Procedure) in the presence of the officer except when his presence is waived on the record by agreement of the parties. The Testimony shall be taken stenographically and transcribed, unless the parties present agree otherwise. In the absence of all opposing parties and their attorneys or agents, depositions may be taken in longhand, typewriting, or stenographically.

(3) The opposing party shall have full opportunity to cross-examine the witnesses. If the opposing party shall attend the examination of witnesses not named in the notice, and shall either cross-examine such witnesses or fail to object to their examination, he shall be deemed to have waived his right to object to such examination for want of notice.

(4) All objections made at the time of the examination to the qualifications of the officer taking the deposition, or to the manner of taking it, or to the evidence presented, or to the conduct of any party, and any other objection to the proceedings, shall be noted by the officer upon the deposition. Evidence objected to shall be taken subject to the objections.

(5) When the deposition has been transcribed, the deposition shall be carefully read over by the witness or by the officer to him, and shall then be signed by the witness in the presence of any officer authorized to administer oaths unless the reading and the signature be waived on the record by agreement of all parties.

(f) Certification and filing by officer. The officer shall annex to the deposition his certificate showing:

(1) Due administration of the oath by the officer to the witness before the commencement of his deposition;

(2) The name of the person by whom the deposition was taken down, and whether, if not taken down by the officer, it was taken down in his presence;

(3) The presence or absence of the adverse party;

(4) The place, day, and hour of commencing and taking the deposition;

(5) The fact that the officer was not disqualified as specified in Rule 28 of the Federal Rules of Civil Procedure.

If any of the foregoing requirements are waived, the certificate shall so state. The officer shall sign the certificate and affix thereto his seal of office, if he has such a seal. Unless waived on the record by agreement, he shall then, without delay, securely seal in an envelope all the evidence, notices, and paper exhibits, inscribed upon the envelope a certificate giving the number and title of the case, the name of each witness, and the date of sealing, address the package, and forward the same to the Commissioner of Patents. If the weight or bulk of an exhibit shall exclude it from the envelope, it shall, unless waived on the record by agreement of all parties, be authenticated by the officer and transmitted in a separate package marked and addressed as provided in this section.

(g) Form of deposition:

(1) The pages of each deposition must be numbered consecutively, and the name of the witness plainly and conspicuously written at the top of each page. The deposition may be written on legal-size or letter-size paper, with a wide margin on the left hand side of the page, and with the writing on one side only of the sheet. The questions propounded to each witness must be consecutively numbered and each question must be followed by its answer.

(2) Exhibits must be numbered or lettered consecutively and each must be marked with the number and title of the case and the name of the party offering the exhibit. Entry and consideration may be refused to improperly marked exhibits.

(h) Depositions must be filed. All depositions which are taken must be duly filed in the Patent Office. On refusal to file, the Office at its discretion will not further hear or consider the contestant with whom the refusal lies; and the Office may, at its discretion, receive and consider a copy of the withheld deposition, attested by such evidence as is procurable.

(i) Inspection of depositions: After the depositions are filed in the Office, they may be inspected by any party to the case, but they cannot be withdrawn for the purpose of printing. They may be printed by someone specially designated by the Office for that purpose, under proper restrictions.

(j) Effect of errors and irregularities in depositions: Notice will not be taken of merely formal or technical objections which shall not appear to have wrought a substantial injury to the party raising them; and in the case of such injury it must be made to appear that, as soon as the party became aware of the ground of objection, he gave notice thereof. Rule

32(d)(1), (2), and (3)(a) and (b) of the Federal Rules of Civil Procedure shall apply to errors and irregularities in depositions.

(k) Objections to admissibility: Subject to the provisions of paragraph (j) of this section, objection may be made to receiving in evidence any deposition or part thereof, or any other evidence, for any reason which would require the exclusion of the evidence according to the established rules of evidence, which will be applied strictly by the Office.

(l) Evidence not considered: Evidence not obtained and filed in compliance with these sections will not be considered.

10. In § 2.124, paragraphs (a) and (b) are revised and a new paragraph (d) is added. As amended, § 2.124 reads as follows:

§ 2.124 *Testimony by depositions upon written questions.*

(a) A party may take the testimony of a witness by written questions to be propounded by an officer before whom depositions may be taken. See Rule 28 of the Federal Rules of Civil Procedure. The questions shall be served upon the other party within 10 days after the opening date set for taking the testimony of the party submitting the questions, together with a notice stating the name and address of the person who is to answer them and the name or descriptive title and address of the officer before whom the deposition is to be taken. Within 10 days thereafter, a party so served may serve cross questions upon the party proposing to take the deposition. Within 5 days thereafter, the latter may serve redirect questions upon a party who has served cross questions. Within 3 days after being served with redirect questions a party may serve recross questions upon the party proposing to take the depositions. Written objections to questions may be served on the party propounding the questions, and in response thereto substitute questions may be served, within 3 days.

(b) A copy of the notice and copies of all questions served shall be delivered by the party taking the testimony to the officer designated in the notice, who shall proceed to take the testimony of the witness in response to the questions and to prepare each answer immediately preceded by its corresponding question, then certify, and file the deposition, attaching thereto the copy of the notice and the questions received by him. Such depositions are subject to the same rulings for filing and serving copies as other depositions.

* * * * *

(d) Testimony in foreign countries shall be taken only by depositions upon written questions unless the parties stipulate otherwise in writing. Rule 28(b) of the Federal Rules of Civil Procedure shall apply to the taking of testimony in foreign countries.

§ 2.124a *[Revoked]*

11. Section 2.124a is revoked.

12. Section 2.125 is revised to read as follows:

§ 2.125 *Copies of testimony.*

(a) One copy of the transcript of testimony (taken in accordance with § 2.123(e) through (h) or § 2.124), together with copies of documentary exhibits, shall be served on each adverse party within 30 days after completion of the taking of such testimony. The certified transcript and exhibits and one copy of the transcript shall be filed in the Patent Office as promptly as possible.

(b) Each transcript and the copies thereof shall comply with § 2.123(g) as to arrangement, indexing and form.

13. In § 2.127, paragraphs (a) and (b) are revised. As amended, § 2.127 reads as follows:

§ 2.127 *Motions.*

(a) Motions shall be made in writing and shall contain a full statement of the grounds therefor. Any brief or memorandum in support of a motion shall accompany or be embodied in the motion. Briefs in opposition to a motion shall be filed within 15 days from the date of service of the motion unless another time is specified by the Trademark Trial and Appeal Board or the time is extended on request. Where a party fails to file a brief in opposition to a motion, the Trademark Trial and Appeal Board may treat the motion as conceded. Oral hearings will not be held on motions except on order of the Trademark Trial and Appeal Board.

(b) Any petition for reconsideration or modification of a decision, if it is not appealable, must be filed within 10 days after the decision or, if the decision is appealable, within the time specified in § 2.129(c). Any brief in opposition shall be filed within 15 days after service of the petition.

14. In § 2.128, paragraph (b) is revised. As amended, § 2.128 reads as follows:

§ 2.128 *Final hearings and briefs.*

(b) Briefs shall be submitted in typewritten or printed form, double spaced on letter or legal size paper. Without leave of the Trademark Trial and Appeal Board, no brief shall contain more than 50 pages of argument and, in case of the reply brief, the entire brief shall not exceed 25 pages. Each brief shall contain an alphabetical index of cases therein.

* * * * *

15. In § 2.129, paragraph (c) is revised. As amended, § 2.129 reads as follows:

§ 2.129 *Oral argument.*

* * * * *

(c) Any petition for rehearing, reconsideration, or modification of a decision must be filed within 30 days from the date thereof. Any brief in opposition shall be filed within 15 days after service of the petition.

Effective date. This revision shall be applicable to all proceedings instituted on or after July 1, 1972.

Date: April 5, 1972.

ROBERT GOTTSCHALK,
Commissioner of Patents.

Approved: April 11, 1972.

JAMES H. WAKELIN, JR.,
Assistant Secretary for Science and Technology.

[FR Doc. 72-5830; Filed 4-17-72; 8:52 am]

Published in 37 F.R. 7605; Apr. 18, 1972

[898 O.G. TM 170]

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(326) TITLE 37—PATENTS, TRADEMARKS, AND COPYRIGHTS

CHAPTER I—PATENT OFFICE, DEPARTMENT OF COMMERCE

PART 1—RULES OF PRACTICE IN PATENT CASES

PART 2—RULES OF PRACTICE IN TRADEMARK CASES

Appeal to U.S. Court of Customs and Patent Appeals

The Commissioner of Patents is amending §§ 1.301 and 2.145 of the rules of practice to set forth the time in which an order for transmitting a transcript to the Court of Customs and Patent Appeals should be filed in the Patent Office. Additionally, for the purpose of clarification, all references to "subsection" in § 2.145 have been amended to read "paragraph." These amendments do not effect any change in practice, but merely notify parties filing appeals of the time necessary for the Patent Office to copy and certify a transcript. Since these changes impose no burden on any person, notice and public procedure thereon are deemed unnecessary.

Therefore, pursuant to the authority contained in section 41 of the Act of July 5, 1946 (60 Stat. 440; 15 U.S.C. 1123), and section 6 of the Act of July 19, 1952 (66 Stat. 793; 35 U.S.C. 6), Parts 1 and 2 of Chapter I of Title 37 of the Code of Federal Regulations are hereby amended as follows:

* * * * *

2. In § 2.145, paragraph (a) is amended by adding a sentence at the end; paragraphs (b), (c), and (d) are amended by substituting "paragraph" for "subsection." As amended, § 2.145 reads as follows:

§ 2.145 *Appeal to court and civil action.*

(a) *Appeal to U.S. Court of Customs and Patent Appeals.* An applicant for registration, or any party to an interference, opposition, or cancellation proceeding or any party to an application to register as a concurrent user, hereinafter referred to as inter partes proceedings, who is dissatisfied with the decision of the Trademark Trial and Appeal Board and any registrant who has filed an affidavit or declaration under section 8 of the act or who has filed an application for renewal and is dissatisfied with the decision of the Commissioner (§§ 2.165, 2.184), may appeal to the U.S. Court of Customs and Patent Appeals. The appellant must take the following steps in such an appeal: (1) In the Patent Office give notice to the Commissioner and file the reasons of appeal (see para-

graphs (b) and (d) of this section); (2) in the court, file a petition of appeal and a certified transcript of the record within a specified time after filing the reasons of appeal, and pay the fee for appeal, as provided by the rules of the court. The transcript will be transmitted to the Court by the Patent Office on order of and at the expense of the appellant. Such order should be filed with the notice of appeal, but in no case should it be filed later than 15 days thereafter.

(b) *Notice and reasons of appeal.* (1) when an appeal is taken to the U.S. Court of Customs and Patent Appeals, the appellant shall give notice thereof to the Commissioner, and file in the Patent Office, within the time specified in paragraph (d) of this section, his reasons of appeal specifically set forth in writing.

(2) In inter partes proceedings, the notice and reasons must be served as provided in § 2.119.

(c) *Civil action.* (1) Any person who may appeal to the U.S. Court of Customs and Patent Appeals (paragraph (a) of this section), may have remedy by civil action under section 21(b) of the act. Such civilization must be commenced within the time specified in paragraph (d) of this section.

(2) If an applicant or registrant in an ex parte case has taken an appeal to the U.S. Court of Customs and Patent Appeals, he thereby waives his right to proceed under section 21(b) of the act.

(3) If a party to an inter partes proceeding has taken an appeal to the U.S. Court of Customs and Patent Appeals, and any adverse party to the case shall, within 20 days after the appellant shall have filed notice of the appeal to the court (paragraph (b) of this section), file notice with the Commissioner that he elects to have all further proceedings conducted as provided in section 21(b) of the act, certified copies of such notices will be transmitted to the U.S. Court of Customs and Patent Appeals for such action as may be necessary. The notice of election must be served as provided in § 2.119.

(d) *Time for appeal or civil action.* The time for filing the notice and reasons of appeal to the U.S. Court of Customs and Patent Appeals (paragraph (b) of this section), or for commencing a civil action (paragraph (c) of this section), is 60 days from the date of the decision of the Trademark Trial and Appeal Board or the Commissioner, as the case may be. If a petition for rehearing or reconsideration is filed within 30 days after the date of the decision, the time is extended to 30 days after action on the petition. No petition for rehearing or reconsideration filed outside the time specified herein after such decision, nor any proceedings on such petition shall operate to extend the period of 60 days hereinabove provided. The time specified herein are calendar days. If the last day of time specified for appeal, or commencing a civil action falls on a Saturday, Sunday, or legal holiday, the time is extended to the next day which is neither a Saturday, Sunday, nor a holiday. If a party to an inter partes proceeding has taken an appeal to the U.S. Court of Customs and Patent Appeals and an adverse party has filed notice under section 21(a)(1) of the act that he elects to have all further proceedings conducted under section 21(b) of the act, the time for filing a civil action thereafter is specified in section 21(a)(1) of the act.

Effective date. This amendment will become effective upon its publication in the Federal Register (5–11–72).

Dated: May 1, 1972.

ROBERT GOTTSCHALK,
Commissioner of Patents.

Approved: April 28, 1972.

JAMES H. WAKELIN, JR.,
Assistant Secretary for Science and Technology.

[FR Doc. 72–7159; Filed 5–10–72; 8:49 am]

Published in 37 F.R. 9175; May 11, 1972

[899 O.G. TM 77]

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(327) BULKY SPECIMENS IN TRADEMARK AND SERVICE MARK APPLICATIONS

Many of the applications which are being received in the Trademark Application Section contain specimens which are too bulky to be placed inside the application file. The handling and storing of these bulky specimens is taking more time and space than can be justified. The trademark rules do not provide for filing bulky specimens, and applicants and attorneys are requested to adhere to the precise provisions of the rules.

Trademark Rule 2.56 requires that specimens be of a material suitable for being placed in a file, be capable of being arranged flat (preferably not more than one inch in thickness), and not be larger than 8½ x 13 inches. If specimens of this character cannot be furnished, Trademark Rule 2.57 provides that facsimiles in the nature of photographs or similar reproductions be filed. Facsimiles must not be larger than 8½ x 13 inches and should clearly and legibly show the mark and all matter used in connection therewith.

In order to reduce the quantity of bulky specimens and to avoid the possibility of delay in examination due to bulky specimens, the following procedure has been adopted:

When specimens cannot be fitted into the file, the Trademark Application Section forwards the specimens to the Examiner separate from the file and attaches to the file two copies of a form which is a pre-examination memorandum pointing out that the bulky specimens are not acceptable and that proper specimens should be filed promptly. Upon receipt of the file and the forms, the Examiner mails one copy of the form to the applicant, or applicant's attorney if there be one, and places the other copy in the file. The Examiner will then destroy four of the bulky specimens, retaining one until proper specimens or facsimiles are received. Failure to furnish proper specimens as requested in the memorandum may delay the process of examination of the application.

ROBERT GOTTSCHALK,
June 16, 1972. *Commissioner of Patents.*

[900 O.G. TM 176]

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(328) TITLE 37—PATENTS, TRADEMARKS, AND COPYRIGHTS

CHAPTER I—PATENT OFFICE, DEPARTMENT OF COMMERCE

PART 2—RULES OF PRACTICE IN TRADEMARK CASES

Petition for Review of Interlocutory Decision

The Commissioner of Patents is amending § 2.127(b) of the rules of practice to extend the time for filing a petition for reconsideration or modification of an interlocutory decision. The existing rule requires that such petition be filed within 10 days from the date of the decision. Recent experience has demonstrated that this time period is insufficient in view of the possibility of delays in communicating the decision to the concerned parties. Accordingly, the rule is amended to permit filing of a petition within 30 days from the date of the decision. Since this change imposes no burden on any person, notice and public procedures thereon are deemed unnecessary.

Therefore, pursuant to the authority contained in section 41 of the Act of July 5, 1946 (60 Stat. 440; 15 U.S.C. 1123) and section 6 of the Act of July 19, 1952 (66 Stat. 793; 35 U.S.C. 6), Part 2 of Chapter I of Title 37 of the Code of Federal Regulations is hereby amended as follows:

§ 2.127 *Motions.*

* * * * *

(b) Any petition for reconsideration or modification of a decision must be filed within 30 days from the date thereof. Any brief in opposition shall be filed within 15 days after service of the petition.

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Effective date. This amendment shall be applicable to all decision dated on or after September 1, 1972.

ROBERT GOTTSCHALK,
July 18, 1972. *Commissioner of Patents.*

Approved: July 21, 1972.

JAMES H. WAKELIN, Jr.,
Assistant Secretary for Science and Technology.

[FR Doc. 72–11883; Filed 7–28–72; 8:54 am]

Published in 37 F.R. 15304; July 29, 1972

[902 O.G. TM 2]

(329) MEETING OF THE PUBLIC ADVISORY COMMITTEE FOR TRADEMARK AFFAIRS

The Public Advisory Committee for Trademark Affairs was established by the Secretary of Commerce to advise the Patent Office of the Department of Commerce on steps which can be taken in order to increase the efficiency and effectiveness of the administration of the Trademark Act and to provide a continuing source of knowledge from the private sector to the Government in the trademark field.

The next meeting of the committee will be held on February 22nd and 23rd, 1973, at the Cherry Hill Inn, Cherry Hill, New Jersey, beginning at 9:00 a.m. each day in the Currier and Ives Room.

The following agenda is to be considered:

1. Review of pending Advisory Committee projects;
2. Report and discussion of the implementation of previous Advisory Committee recommendations of a recently completed study relating to trademark application processing and record keeping;
3. Report and discussion of the status of the Trademark Operations;
4. Discussion of the use of forms in the Trademark Operations; and
5. Discussion of working hours in the Trademark Operations.

The membership of the Advisory Committee consists of nine members of the Patent Office-Trademark Affairs Committee of the United States Trademark Association.

Meetings of the Advisory Committee are open to the public. Public attendance depending on available space, may be limited to those persons who have notified the Advisory Committee Management Officer in writing, at least five days prior to the meeting, of their intentions to attend the February 22–23 meeting.

Any member of the public may file a written statement with the Committee before, during, or after the meeting, and to the extent that time for the meeting permits the Committee Chairman may allow public presentation of oral statements at the meeting.

All communications regarding this Advisory Committee should be addressed to Mr. Rene D. Tegtmeyer, Advisory Committee Management Officer for Trademark Affairs, Room 3-11D27, U.S. Patent Office, Washington, D.C. 20231.

ROBERT GOTTSCHALK,
Commissioner of Patents.

Jan. 16, 1973.

[907 O.G. TM 68]

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(330) TRADEMARKS, TRADE NAMES, AND COPYRIGHTS

[19 CFR Part 133]

Filing of Increased Number of Copies of Documents With Application To Record Trademark or Copyright

Notice is hereby given that under the authority of R.S. 251, as amended (19 U.S.C. 66), and section 624, 46 Stat. 759 (19 U.S.C. 1624), it is proposed to amend §§ 133.3 and 133.33 of the Customs regulations to provide that the number of copies of documents required by the Bureau of Customs to be filed with an application to record a copyright or trademark is increased from 700 to 1,000.

Accordingly, it is proposed to amend paragraph (a) of § 133.3, and paragraph (a)(2) of § 133.33 to read as follows:

§ 133.3 *Documents and fee to accompany application.*

(a) *Documents.* The application shall be accompanied by: (1) A status copy of the certificate of registration certified by the U.S. Patent Office showing title to be presently in the name of the applicant; and

(2) One thousand copies of this certificate, or of a U.S. Patent Office facsimile. The copies may be reproduced privately and shall be on paper approximately 8½ x 11 in size. If the certificate consists of two or more pages, the copies may be reproduced on both sides of the paper.

* * * * *

§ 133.33 *Documents and fee to accompany application.*

(a) * * *

* * * * *

(2) One thousand 8 x 10½ photographic or other likenesses reproduced on paper of any three-dimensional work, design, print, label, or other work not readily identifiable by title and author. An application shall be excepted from this requirement if it covers a work such as a book, magazine, periodical, or similar copyrighted matter readily identifiable by title and author. One thousand likenesses of a component part of a copyrighted work, together with the name or title, if any, by which the part so depicted is identifiable, may accompany an application covering an entire copyrighted work.

* * * * *

Consideration will be given to relevant data, views, or arguments pertaining to the proposed amendment which are submitted to the Commissioner of Customs, Attention: Regulations Division, Washington, D.C. 20226, and received no later than March 19, 1973.

Written material or suggestions submitted will be available for public inspection in accordance with § 103.0(b) of the Customs regulations (19 CFR 103(b)), at the Regulations Division, Bureau of Customs, Washington, D.C., during regular business hours.

Approved: Feb. 8, 1973.

EDWARD L. MORGAN,
Assistant Secretary of the Treasury.

[SEAL]

EDWIN F. RAINS,
Acting Commissioner of Customs.

[FR Doc. 73-3039; Filed 2-14-73; 8:45 am]

Published in 38 F.R. 4515-4516; Feb. 15, 1973

[908 O.G. TM 136]

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(331) TITLE 37—PATENTS, TRADEMARKS, AND COPYRIGHTS

CHAPTER I—PATENT OFFICE, DEPARTMENT OF COMMERCE

PART 2—RULES OF PRACTICE IN TRADEMARK CASES

Abandonment of Application

A proposal was published at 37 FR 18391 to revise § 2.68. Full consideration has been given to all comments received pursuant to this notice and changes in the text of the original proposal have been made in view thereof.

The revision of § 2.68 permits an attorney or other person representing the applicant to abandon or withdraw an application. Prior to this revision, the applicant was required to sign the statement of abandonment. The rule is further revised by the addition of a sentence which indicates that in a Patent Office proceeding, abandonment of the application does not affect any rights which the applicant may have in the mark. The word "withdrawal" which has been added to the rule is synonymous with the word "abandonment" in the context of this rule and may be used by those who prefer to do so.

Effective date. This revision shall become effective on March 27, 1973.

Part 2 of Chapter I of Title 37 of the Code of Federal Regulations is amended by revising § 2.68 to read as follows:

§ 2.68 *Express abandonment (withdrawal) of application.*

An application may be expressly abandoned by filing in the Patent Office a written statement of abandonment or withdrawal of the application signed by the applicant, or the attorney or other person representing the applicant. The fact that an application has been expressly abandoned shall not, in any proceeding in the Patent Office, affect any rights that the applicant may have in the mark which is the subject of the abandoned application.

Dated: Mar. 15, 1973.

ROBERT GOTTSCHALK,
Commissioner of Patents.

Approved:

RICHARD O. SIMPSON,
Acting Assistant Secretary for Science and Technology.

[FR Doc. 73-5768; Filed 3-26-73; 8:45 am]

Published in 38 F.R. 7985; Mar. 27, 1973

[909 O.G. TM 254]

(332) TITLE 37—PATENTS, TRADEMARKS, AND COPYRIGHTS

CHAPTER I—PATENT OFFICE, DEPARTMENT OF COMMERCE

PARTS 2 AND 6—RULES OF PRACTICE IN TRADEMARK CASES

International Trademark Classification

A proposal was published at 37 F.R. 6404 to revise § 6.1 of the Rules of Practice in Trademark Cases. The Patent Office proposed to establish the "International Classification of Goods and Services to Which Trademarks Are Applied" (the subject of the "Nice Agreement Concerning the International Classification of Goods and Services for the Purposes of the Registration of Marks" of 1957, as revised at Stockholm on July 14, 1967) as the primary classification of goods and services for registration of trademarks and service marks. Pursuant to the Notice, written comments have been received, and a public hearing was held on June 14, 1972. Full consideration has been given to all matter presented, and changes in the text of the original proposal have been made in view thereof. It has been determined that adoption of the international classification system is desirable.

The Patent Office has studied the international classification and, since Mar. 5, 1968, has indicated the appropriate international class in all publications and on all issued registrations and renewals as a subsidiary classification. Based on this experience and the comments received, it is now believed that adoption of the international schedule as the primary classification system is desirable. The international system is easier to administer because of fewer classes of goods and the availability of an alphabetical listing of goods and services.

The Nice Agreement provides for an International Committee of Experts whose objective is to keep the classification current. The classification of specific goods and services is set forth in the Alphabetical List entitled "International Classification of Goods and Services to Which Trademarks Are Applied" (published by the World Intellectual Property Organization). In addition, the International Trademark Classification List contains the names of the classes setting forth the basic contents of each class. The Alphabetical List also comprises explanatory notes which serve as guidelines for determining the appropriate international class for a specific product or service.

The alphabetical listing within the International Trademark Classification Manual is currently used by the Office as a guideline for determining the degree of particularity of identification of goods. See "Identification of Goods and Services in Trademark Applications," 36 F.R. 13232; July 16, 1971.

Applications for registrations filed on or after Sept. 1, 1973, and registrations issuing thereon, will be classified according to the international classification set forth in the new § 6.1. Accordingly, the international classification is adopted under Section 30 of the Trademark Act for all purposes under the statute and rules; and, therefore, will be the criterion for determining, inter alia, fees.

Applications for the registration of marks filed on or before Aug. 31, 1973, appeals or petitions to revive or oppositions filed in connection with said applications, and affidavits, renewals and petitions for cancellation filed in connection with registrations issuing thereon, will continue to be processed under the classification system existing at the time the mark was registered.

All applications which are published and registrations which are issued will carry both the appropriate international classification and existing U.S. classification number.

An insufficient fee, in connection with an appeal or opposition on any application or in connection with an affidavit or renewal filed in connection with any registration, will not render the same unacceptable, if the proper fee is submitted within a time limit set forth in a notification of the defect, providing the proper fee for at least one class has been originally submitted within the applicable time limit. This will be the case even if the full fee is not received within the sixth year in the case of an affidavit filed under Section 8 or before the end of the twentieth year, including the grace period, in the case of renewal applications, or within the six-month statutory response period in the case of an appeal, or within the thirty-day opposition period, or any extension thereof in the case of the filing of an opposition.

The existing classification system will continue to be used for searching registered and pending marks until all documents in the search file are organized on the basis of the international system of classification. Until this changeover is effected, the U.S. class designation will continue to be printed on all published applications and registrations issued under the existing or the international classification system to facilitate searching on the basis of the existing U.S. system of classification.

Until all applications filed on or before Aug. 31, 1973, have been disposed of, the trademark sections of the OFFICIAL GAZETTE, which are organized by class, will include two sections: one for applications published or registrations issued on the basis of applications filed on or before Aug. 31, 1973, organized by class according to the U.S. schedule of classes; the other section for applications published or registrations issued on the basis of applications filed on or after Sept. 1, 1973, organized by class according to the new international schedule.

Certification marks and collective membership marks will continue to be classified as set forth in redesignated §§ 6.3 and 6.4.

Efforts will be made to have the International Trademark Classification List printed by the Government Printing Office or otherwise assure the availability of the List from local sources. Notification will appear in the OFFICIAL GAZETTE when the List is available from local sources or the Government Printing Office.

The English edition of the "International Classification of Goods and Services to Which Trademarks Are Applied" can presently be ordered from:

Sales Branch, The Patent Office, Block C
Station Square House, St. Mary Cray
Orpington, Kent, England

Certain modifications and additions to the international trademark classification have been published as supplements and are also available from the British Office. In addition, and inasmuch as the World Intellectual Property Organization (WIPO) has issued the List in several languages, it is anticipated that an English version will be published by that organization.

We have been advised by the Patent Office of the United Kingdom that the only acceptable methods of payment for the International Trademark Classification List are by International Postal Money Order or by banker's draft payable in sterling and drawn on a bank in the United Kingdom. Orders for the international classification and for the supplements can be made by remittance in the following amount(s):

International Trademark Classification		50 pence
Nov. 15, 1967, supplement		5 pence
Mar. 18, 1970, supplement		Free
Mar. 3, 1971, supplement		10 pence
Total cost (including postage by surface mail)		65 pence
Additional charge for postage by air mail	1 pound	55 pence
Total cost by airmail	2 pounds	20 pence

Effective Date.—This revision shall become effective as of Sept. 1, 1973. In consideration of the comments and pursuant to the authority contained in section 6 of the Act of July 19, 1952 (66 Stat. 792, 35 U.S.C. 6), as amended Oct. 5, 1971 (85 Stat. 364), and in section 30 of the Trademark Act of 1946 as amended (Oct. 9, 1962, 76 Stat. 773, 15 U.S.C. 1112), Parts 2 and 6 of Chapter I of Title 37 of the Code of Federal Regulations are hereby amended as follows:

1. Section 2.85 is revised to read as follows:

§ 2.85. *Classification Schedules*

(a) Section 6.1 of Part 6 of this chapter specifies the system of classification for goods and services which applies for all statutory purposes to trademark application filed in the Patent Office on or after Sept. 1, 1973, and to registrations issued on the basis of such applications. It shall not apply to applications filed on or before Aug. 31, 1973, nor to registrations issued on the basis of such applications.

(b) With respect to applications filed on or before Aug. 31, 1973, and registrations issued thereon, including older registrations issued prior to that date, the classification system under which the registration was granted will govern for all statutory purposes, including, inter alia, the filing of petitions to revive, appeals, oppositions, petitions for cancellation, affidavits under Section 8 and Renewals, even though such peti-

tions to revive, appeals, etc., are filed on or after Sept. 1, 1973.

(c) Section 6.2 of Part 6 of this chapter specifies the system of classification for goods and services which applies for all statutory purposes to all trademark applications filed in the Patent Office on or before Aug. 31, 1973, and to registrations issued on the basis of such applications, except when the registration may have been issued under a classification system prior to that set forth in § 6.2. Moreover, this classification will also be utilized for facilitating trademark searches until all pending and registered marks in the search file are organized on the basis of the international system of classification.

(d) Renewals filed on registrations issued under a prior classification system will be processed on the basis of that system.

(e) Where the amount of the fee received on filing an appeal or petition to revive in connection with an application or on filing an affidavit under § 8(a) or § 8(b) or on an application for renewal or in connection with an opposition or petition for cancellation is sufficient for at least one class of goods or services but is less than the required amount because a multiple class application or registration is involved, the appeal or petition to revive or the affidavit or renewal application or opposition or petition for cancellation will not be refused on the ground that the amount of the fee was insufficient if the required additional amount of the fee is received in the Patent Office within the time limit set forth in the notification of this defect by the Examiner.

(f) Sections 6.3 and 6.4 specify the system of classification which applies to certification marks and collective membership marks.

(g) Classification schedules shall not limit or extend the applicant's rights.

2. Sections 6.1, 6.2 and 6.3 are redesignated as §§ 6.2, 6.3 and 6.4, respectively.

3. A new § 6.1 is added and reads as follows:

§ 6.1. ***International schedule of classes of goods and services***

GOODS

1. Chemical products used in industry, science, photography, agriculture, horticulture, forestry; artificial and synthetic resins; plastics in the form of powders, liquids or pastes, for industrial use; manures (natural and artificial); fire extinguishing compositions; tempering substances and chemical preparations for soldering; chemical substances for preserving foodstuffs; tanning substances; adhesive substances used in industry.
2. Paints, varnishes, lacquers; preservatives against rust and against deterioriation of wood; colouring matters, dyestuffs; mordants; natural resins; metals in foil and powder form for painters and decorators.
3. Bleaching preparations and other substances for laundry use; cleaning, polishing, scouring and abrasive preparations; soaps; perfumery, essential oils, cosmetics, hair lotions; dentifrices.
4. Industrial oils and greases (other than oils and fats and essential oils); lubricants; dust laying and absorbing compositions; fuels (including motor spirit) and illuminants; candles, tapers, night lights and wicks.
5. Pharmaceutical, veterinary, and sanitary substances; infants' and invalids' foods; plasters, material for bandaging; material for stopping teeth, dental wax, disinfectants; preparations for killing weeds and destroying vermin.
6. Unwrought and partly wrought common metals and their alloys; anchors, anvils, bells, rolled and cast building materials; rails and other metallic materials for railway tracks; chains (except driving chains for vehicles); cables and wires (nonelectric); locksmiths' work; metallic pipes and tubes; safes and cash boxes; steel balls; horseshoes; nails and screws; other goods in nonprecious metal not included in other classes; ores.
7. Machines and machine tools; motors (except for land vehicles); machine couplings and belting (except for land vehicles); large size agricultural implements; incubators.
8. Hand tools and instruments; cutlery, forks, and spoons; side arms.
9. Scientific, nautical, surveying and electrical apparatus and instruments (including wireless), photographic, cinematographic, optical, weighing, measuring, signalling, checking (supervision), life-saving and teaching apparatus and instruments; coin or counterfreed apparatus; talking machines; cash registers; calculating machines, fire extinguishing apparatus.
10. Surgical, medical, dental and veterinary instruments and apparatus (including artificial limbs, eyes and teeth).
11. Installations for lighting, heating, steam generating, cooking, refrigerating, drying, ventilating, water supply and sanitary purposes.
12. Vehicles; apparatus for locomotion by land, air or water.
13. Firearms; ammunition and projectiles; explosive substances; fireworks.
14. Precious metals and their alloys and goods in precious metals or coated therewith (except cutlery, forks and spoons); jewellery, precious stones, horological and other chronometric instruments.
15. Musical instruments (other than talking machines and wireless apparatus).
16. Paper and paper articles, cardboard and cardboard articles: printed matter, newspapers and periodicals, books; bookbinding material; photographs; stationery, adhesive materials (stationery); artists' materials; paint brushes; typewriters and office requisites (other than furniture); instructional and teaching material (other than apparatus); playing cards; printers' type and cliches (stereotype).
17. Gutta percha, india rubber, balata and substitutes, articles made from these substances and not included in other classes; plastics in the form of sheets, blocks and rods, being for use in manufacture; materials for packing, stopping or insulating; asbestos, mica and their products; hose pipes (nonmetallic).
18. Leather and imitations of leather, and articles made from these materials and not included in other classes; skins, hides; trunks and travelling bags; umbrellas, parasols and walking sticks; whips, harness and saddlery.
19. Building materials, natural and artificial stone, cement, lime, mortar, plaster and gravel; pipes of earthenware or cement; roadmaking materials; asphalt, pitch and bitumen; portable buildings; stone monuments; chimney pots.
20. Furniture, mirrors, picture frames; articles (not included in other classes) of wood, cork, reeds, cane, wicker, horn bone, ivory, whalebone, shell, amber, mother-of-pearl, meerschaum, celluloid, substitutes for all these materials, or of plastics.
21. Small domestic utensils and containers (not of precious metals, or coated therewith); combs and sponges; brushes (other than paint brushes); brushmaking materials; instruments and material for cleaning purposes, steel wool; unworked or semi-worked glass (excluding glass used in building); glassware, porcelain and earthenware, not included in other classes.
22. Ropes, string, nets, tents, awnings, tarpaulins, sails, sacks; padding and stuffing materials (hair, kapok, feathers, seaweed, etc.); raw fibrous textile materials.
23. Yarns, threads.
24. Tissues (piece goods); bed and table covers; textile articles not included in other classes.
25. Clothing, including boots, shoes and slippers.
26. Lace and embroidery, ribands and braid; buttons, press buttons, hooks and eyes, pins and needles; artificial flowers.
27. Carpets, rugs, mats and matting; linoleums and other materials for covering existing floors; wall hangings (nontextile).
28. Games and playthings; gymnastic and sporting articles (except clothing); ornaments and decorations for Christmas trees.
29. Meat, fish, poultry and game; meat extracts; preserved, dried and cooked fruits and vegetables; jellies, jams; eggs, milk and other dairy products; edible oils and fats; preserves, pickles.
30. Coffee, tea, cocoa, sugar, rice, tapioca, sago, coffee substitutes; flour, and preparations made from cereals; bread, biscuits, cakes, pastry and confectionery, ices; honey, treacle; yeast, baking powder; salt, mustard, pepper, vinegar, sauces, spices; ice.
31. Agricultural, horticultural and forestry products and grains not included in other classes; living animals; fresh fruits and vegetables; seeds; live plants and flowers; foodstuffs for animals, malt.

32. Beer, ale and porter; mineral and aerated waters and other nonalcoholic drinks; syrups and other preparations for making beverages.
33. Wines, spirits and liqueurs.
34. Tobacco, raw or manufactured; smokers' articles; matches.

SERVICES

35. Advertising and business.
36. Insurance and financial.
37. Construction and repair.
38. Communication.
39. Transportation and storage.
40. Material treatment.
41. Education and entertainment.
42. Miscellaneous.

ROBERT GOTTSCHALK,
Commissioner of Patents.

Date: May 14, 1973.

Approved:
BETSY ANCKER-JOHNSON,
Assistant Secretary for Science and Technology.

(Pub. in 38 F.R. 14681, June 4, 1973)

[911 O.G. TM 210]

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(333) TRADEMARK REGISTRATION TREATY

At the conclusion of the Vienna Diplomatic Conference on industrial property, the Trademark Registration Treaty was signed on June 12, 1973 for the United States. This Treaty is designed to simplify the procedures for obtaining international registration of trademarks for United States companies doing business abroad.

The Treaty was unanimously adopted at the final plenary session. In addition to the United States, the United Kingdom, the Federal Republic of Germany, Italy, Portugal, Hungary, San Marino and Monaco also signed. Some forty-six countries were represented at the Conference. In their closing statements most of the other delegations present indicated their hope to sign before the end of the year. The Treaty remains open for signature through December 31, 1973. The Treaty will enter into force six months after five States have deposited their instruments of ratification or accession.

The negotiations at Vienna represent the climax of the work of several committees of experts and working groups which have met at Geneva since 1970 with the assistance of the World Intellectual Property Organization (WIPO). The U.S. delegation to the Vienna Conference was composed of officials from the Department of State, the U.S. Patent Office and advisors from the private sector. Previous versions of the proposed Treaty were published on February 22, 1972; September 19, 1972; and February 20, 1973; in the OFFICIAL GAZETTE of the U.S. Patent Office. Published in this issue is the complete text of the Trademark Registration Treaty and its Regulations, as adopted by the Conference. For convenience, in addition to the text of the Articles and Regulations as adopted there is included a table of contents at the end of each section.

Additional copies of this material are available upon request to the Commissioner of Patents.

ROBERT GOTTSCHALK,
June 22, 1973 *Commissioner of Patents.*

[912 O.G. TM 205]

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(334) FORM PARAGRAPHS AND PRINTED FORMS IN TRADEMARK CASES

In September of 1971, the Trademark Examining Operation began utilizing form paragraphs for the purpose of accelerating the preparation and typing of first action Office letters and to increase the uniformity in the application of the Trademark Statute and the Rules by Trademark Examiners.

The form paragraphs presently total 136 and cover those objections and grounds for refusal which are commonly relied upon by Trademark Examiners in first Office actions. In some cases, the paragraphs contain blanks to be filled in by the Examiner. In addition, the Examiner may add additional sentences to the paragraphs.

The form paragraphs have been placed on magentic tapes mounted on automatic typewriters. Where the use of a form paragraph is appropriate, the Examiner identifies the paragraph to be typed by a preassigned number which is used by the typist to effect the automatic typing of the paragraph.

The Examiner may add any additional paragraphs to the letter which are not covered by an appropriate form paragraph, in which case the typist merely manually adds the paragraph to the letter.

The form paragraphs are amended from time to time to incorporate improvements in the wording as the need for such becomes apparent. Also, new paragraphs are added and old paragraphs eliminated, as experience dictates the need.

In addition, the Office has adopted a printed first action form with check-off boxes to indicate to the applicant the appropriate objection or ground of refusal in first Office actions. This form is used only where it can be used appropriately as a complete first Office action. It is not used in any case to supplement a first Office action incorporating paragraphs not encompassed by the form action. It has been found that the form action is appropriate for use in approximately 15–20% of the first actions going out of the Office.

The form first action is also designed for use as a notice of the publication of an application for opposition.

Copies of the text of the form paragraphs used with the automatic typewriters and copies of the first action form may be obtained by addressing a request for the same to the "Commissioner of Patents, Washington, D.C. 20231."

Date: June 29, 1973.

RENE D. TEGTMEYER,
Assistant Commissioner for Trademarks.

[912 O.G. TM 310]

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(335) TITLE 37—PATENTS, TRADEMARKS, AND COPYRIGHTS

CHAPTER 1—PATENT OFFICE, DEPARTMENT OF COMMERCE

PART 2—RULES OF PRACTICE IN TRADEMARK CASES

Lawful Use for Supplemental Register and Size of Facsimiles

The Patent Office is revising §§ 2.47 and 2.57 of the trademark rules of practice. Section 2.47 is being revised to set forth that the year's use which is the basis for registration on the Supplemental Register must be lawful use. Existing § 2.47 states that the year's use for the Supplemental Register must be "continuous use," whereas section 23 of the Trademark Act of 1946 specifies that such use must be "lawful use." The purpose of this revision is to conform the wording of § 2.47 to the wording of the statute. This revision does not effect any change in practice, as in applying the rule the term "continuous use" has been treated as having the same meaning as the term "lawful use" in the statute.

Section 2.57 is being revised to set forth that facsimile-specimens are not to exceed 8½ inches wide and 13 inches long. Existing § 2.57 states that facsimiles shall be not larger than specified for the drawing. That statement is now incorrect due to a recent amendment of the drawing length to 11 inches. The purpose of this revision is to correct the wording of §2.57, and to conform the wording of rule 2.57 to the wording of § 2.56 (Specimens) which has already been amended to specify that specimens are not to exceed 8½ inches wide and 13 inches long.

Since these revisions impose no burden on any person, notice and public procedures thereon are deemed unnecessary.

Therefore, pursuant to the authority contained in section 41 of the Act of July 5, 1946 (60 Stat. 440; 15 U.S.C. 1123), and section 6 of the Act of July 19, 1952 (66 Stat. 793; 35 U.S.C. 6, as amended October 5, 1971, 85 Stat. 364), Part 2 of Chapter I of Title 37 of the Code of Federal Regulations is hereby revised as follows:

1. Section 2.47 is revised to read as follows:

§ 2.47 *Supplemental register.*

In an application to register on the Supplemental Register, the application shall so indicate and shall specify that the mark has been in lawful use in commerce, Specifying the

nature of such commerce, by the applicant for the preceding year, if the application is based on such use. When an applicant requests registration without a full year's use of the mark, in accordance with the last paragraph of section 23 of the act, the showing required must be separate from the application.

(Sec. 23, 60 Stat. 435; 15 U.S.C. 1091)

2. Section 2.57 is revised to read as follows:

§ 2.57 *Facsimiles.*

When, due to the mode of applying or affixing the trademark to the goods, or to the manner of using the mark on the goods, or to the nature of the mark, specimens as above stated cannot be furnished, five copies of a suitable photograph or other acceptable reproduction, not to exceed 8½ inches wide and 13 inches long, and clearly and legibly showing the mark and all matter used in connection therewith, shall be furnished.

Effective date. These revisions shall become effective on July 16, 1973.

Dated: July 5, 1973.

RENE D. TEGTMEYER,
Acting Commissioner of Patents.

Approved:
BETSY ANCKER-JOHNSON,
Assistant Secretary for Science and Technology.

[FR Doc. 73-14453; Filed 7-13-73; 8:45 am]

Published in 38 F.R. 18876; July 16, 1973

[913 O.G. TM 2]

PATENT NOTICES ALSO PERTINENT TO TRADEMARKS
(Repeated Here for Convenience)

(5) ZIP CODE REMINDER

By Executive Memorandum of June 18, 1965, President Johnson directed all Federal Agencies to take the lead in adopting the ZIP Code system and instructed the Postmaster General to issue regulations governing the use of ZIP Codes by such agencies.

Pursuant to this directive, Section 137.26 has been added to the Postal Manual requiring compliance by Federal Agencies as follows:

1. Effective January 1, 1966, official mailings containing typed or handwritten addresses must include the ZIP Code.
2. Effective January 1, 1967, all Federal Agencies must use the ZIP Code in the addresses on *all* official mail and are required to presort quantity mailings by ZIP code.

TO THIS END, ALL FUTURE LETTERS, COUPONS, AND OTHER PAPERS BEARING THE SENDER'S ADDRESS WHICH ARE MAILED TO THE PATENT OFFICE MUST SHOW THE ZIP CODE DESIGNATION OF BOTH THE SENDER AND THE PATENT OFFICE.

The Patent Office ZIP Code is 20231. This designation should be used when writing to the Patent Office for any matter. In addition, the sender's own ZIP Code designation should be given. The benefits to be gained by the immediate use of ZIP Code are many: positive identification of areas; faster delivery of mail by reducing the number of handlings from point of origin to destination; and easier identification of post office address.

C. A. KALK,
Mar. 22, 1966. *Director of Administration.*

[825 O.G. 428]

(12) OFFICIAL PATENT OFFICE MAILING ADDRESS REMAINS WASHINGTON, D.C.

The official mailing address for all communications sent to the Patent Office remains:

Commissioner of Patents
Washington, D.C. 20231

Any telegrams sent to the Patent Office must also bear the above identical address.

The physical location of the Patent Office is 2021 Jefferson Davis Highway, Arlington, Virginia. This address must not be used when addressing mail to the Patent Office.

No reference to Crystal Plaza, Virginia, should be made in the address of *any* communication intended for delivery to the Patent Office by the Post Office Department or Western Union.

Compliance with this instruction will help prevent any unnecessary delay in the delivery of mail, telegrams, etc.

C. A. KALK,
Feb. 20, 1969. *Director of Administration.*

[860 O.G. 662]

(23) NEW PROCEDURES FOR PROCESSING ORDERS FOR CERTIFIED COPIES WHEN MATERIAL IS NOT AVAILABLE FOR PHOTOCOPYING

The previous practice of the Document Services Division in handling customer's requests for certified copies of material not yet processed in the Application Division has been to return the order to the customer requesting him to reorder 30 days after receipt of his Official Filing Receipt.

In order to improve this procedure, as of August 2, 1971, all requests for certified copies of material that has not been processed in the Application Division and has not been placed on microfiche are processed in the following manner.

1. Each order is given a control number.
2. The customer is notified as follows:
   a. He will receive an acknowledgment of the receipt of his order.
   b. He will be given the assigned control number for ease of reference in case an inquiry is necessary.
   c. He will be informed that his order will be held in the Document Services Division until the copy can be reproduced from microfiche. No definite time can be given.
3. An Advance Order File has been set up in the Service Unit of the Document Services Division and the microfiche is checked daily.

For further service to its customers, the Document Services Division will furnish the Serial Number and Filing Date of the latest application available on microfiche for publication in the OFFICIAL GAZETTE.

ROBERT J. RISH,
Aug. 2, 1971. *Acting Assistant Commissioner for Administration.*

[890 O.G. 301]

(26) PUBLIC RECORDS CERTIFICATION DESK

The certification desk, located in Crystal Plaza in the Attorneys and Record Room, Building 4, Room 1D01, provides "on-the-spot" certifying service. This desk handles walk-in requests for certified copies of file wrappers, patented applications, patents, and selected papers from patented application files. The usual fee for this service (1.00 per certification) may be applied at this location in the form of a paid cash order form, obtainable at the Cashier's Office adjacent the lobby of building #2.

ROBERT GOTTSCHALK,
Nov. 26, 1971. *Acting Commissioner of Patents.*

[893 O.G. 810]

(27) CUSTOMER RELATIONS CENTER

A Customer Relations Center, located in Crystal Plaza adjacent to the Public Search Room, Building 4, Rooms A102 and A103, has been established to provide a central customer

complaint and inquiry service. The Center is staffed with six highly experienced employees who process inquiries concerning copies of U.S. patent documents previously ordered but not received. This Center handles not only walk-in but telephonic, and written requests for assistance as well. In addition to improving customer relations, this service is intended to relieve the primary customer service areas (Patent Copy Sales, Document Services, and Reference Order Branch), and Patent Office officials, or interruptions and irregular demands on their time.

The telephone number for this service is (703) 557–2003.

ROBERT GOTTSCHALK,
Nov. 26, 1971. *Acting Commissioner of Patents.*

[893 O.G. 807]

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(34) PATENT OFFICE BUSINESS HOURS

This procedure is being published to bring to the attention of the public security provisions concerning the Patent Office premises and Patent Office files.

The public is reminded that the Patent Office working hours are 8:30 a.m. to 5:00 p.m. Monday through Friday, excluding legal holidays in the District of Columbia. Outside these hours, only Patent Office employees are authorized to be in areas of the Patent Office other than the Public Search Rooms. Of course, a member of the public engaged in a discussion of business with an Office employee may be invited by the employee to stay beyond Office hours to conclude the discussion.

The hours for the Public Search Room are 8:00 a.m. to 8:00 p.m., and the hours for the Trademark Search Room are 8:00 a.m. to 6:00 p.m. Monday through Friday, excluding legal holidays in the District of Columbia.

During working hours, all applicants, attorneys, and other members of the public should announce their presence to the Office personnel in the area of their visit. In the Examining Groups, visitors should inform the group receptionist of their presence before visiting other areas of the Group.

RENE D. TEGTMEYER,
Sept. 27, 1973. *Acting Commissioner of Patents.*

[915 O.G. 1164]

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(35) ACCESSIBILITY OF ASSIGNMENT RECORDS

In view of a number of inquiries as to the manner in which Rule 1.12 of the Patent Office Rules of Practice, as amended August 23, 1965 (819 O.G. 443) is to be applied, the procedure which it is planned to follow in certain types of cases is set forth below.

1. Assignments relating to applications for registration of trademarks will be open to public inspection as heretofore.

2. The Office will not open certain parts only at an assignment document to public inspection. If such a document contains two or more items, any one of which, if alone, would be open to such inspection, then the entire document will be open. Thus, if an assignment covers either a trademark or a patent in addition to one or more patent applications, it will be available to the public ab initio; and if it covers a number of patent applications, it will be so available as soon as any one of them is patented. Assignments relating only to one or more pending applications for patent will not be open to public inspection.

3. If the application on which a patent was granted is a division or continuation of an earlier case, the assignment records of that case will be open to public inspection; similar situations involving continuation in part applications will be considered on their individual merits.

4. Assignment records relating to reissue applications will be open to public inspection.

EDWARD J. BRENNER,
Dec. 15, 1965. *Commissioner.*

[822 O.G. 769]

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(43) PATENT OFFICE SERVICES

A notice concerning delays in furnishing Certified Copies was published Aug. 8, 1972 (901 O.G. 412). This notice announced the initiation of a special "Expedited Service" for obtaining copies of pending applications promptly. As indicated in the notice, this special service would be terminated upon restoration of our regular service to an acceptable level.

I am pleased to report that our regular service has been restored to an acceptable level and this special program is being terminated.

However, our efforts to improve our services in these areas will continue. We have made progress, but are not resting on that record. We recognize that there are still problems of accuracy and quality in the filling of orders. These are currently being examined in an effort to bring about necessary improvements.

Thank you for your cooperation and understanding during this difficult period.

ROBERT GOTTSCHALK,
May 30, 1973. *Commissioner of Patents.*

[911 O.G. 1130]

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(45) REVISION OF "DISCONTINUANCE OF DEPOSIT ACCOUNT SERVICE FOR SALE OF PATENT COPIES"

In view of the difficulties experienced by many of its customers, the Patent Office is revising the Notice appearing in the December 1, 1964, issue of the *Official Gazette of the U.S. Patent Office.* This Notice—Discontinuance of Deposit Account Service for Sale of Patent Copies—is revised to except certain types of patent copy orders.

The Patent Office will now accept lists of fifty (50) or more numbers arranged in numerical sequence to be charged to Deposit Accounts. Service charges, such as Special Handling and Air Mail postage for these orders, may also be charged to Deposit Accounts.

C. A. KALK,
July 15, 1965. *Director of Administration.*

[818 O.G. 1207]

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(47) DEPOSIT ACCOUNTS—STATUTORY FEE CHARGES

Beginning on May 1, 1966, and until further notice, statutory fees, including filing fees for patent, design, and trademark applications, issue fees, appeal fees and opposition, cancellation and petition fees may be charged against the deposit accounts provided for by Rule 25(a) of the Rules of Practice in patent cases. During this period the prohibition of Rule 25(b) against such charges will be suspended.

In view of the facts that these fees are indispensable parts of the actions to which they relate and that the charging of a fee against an account which does not contain sufficient funds to cover it cannot be regarded as a payment of the fee, it is evident that the overdrawing of a deposit account may result in the loss of a vital date and may also impose a substantial burden on the Patent Office in making appropriate correction of its records. It is, therefore, necessary that effective steps be taken to avoid such overdrafts, as follows:

Checks of all accounts will be made periodically, and if any account is found to have been overdrawn, it will be immediately removed from the active accounts and no further drafts on it will be honored. Prompt payment of the outstanding balance will be required and the depositor or his attorney may be called on for an itemized statement identifying all statutory fees charged against the account during the period in question in order that it may be ascertained whether any previously granted date should be withdrawn.

It is emphasized that the success of the procedure outlined above depends upon the maintenance of a sufficient balance in deposit accounts at all times to meet any charges made against them. The Office must, therefore, strictly refuse to permit any depositor who has once overdrawn his account to maintain such an account in the future and in the event that

any substantial number of overdrafts occurs it may be necessary to reestablish the prohibition of Rule 25(b) against charging statutory fees against deposit accounts.

Accordingly, effective May 1, 1966, the requirement of Rule 25(a) that an amount sufficient to cover all charges made against an account must always be on deposit will be strictly enforced, regardless of whether any fee is included in such charges and where this requirement is not complied with the account involved will be removed from the active accounts.

EDWARD J. BRENNER,
Feb. 23, 1966. *Commissioner.*

[824 O.G. 1200]

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(48) PRACTICE IN THE USE OF ACCOUNTS FOR PAYMENT OF STATUTORY FEES

In the OFFICIAL GAZETTES of March 15, 22, and 29, there appeared copies of an announcement by the Commissioner providing for a trial use of accounts established under Rule 25 for the payment of statutory fees. A number of questions have come up in connection with the use of accounts in the payment of these fees prescribed by Public Law 89–83 and, in the interest of uniform practice, publication of a statement is warranted.

A general direction by an applicant or attorney to charge to an account these fees as they arise in any application prosecuted by the applicant, the attorney, or the firm will not be effective for such a purpose, Authority to make charges will be limited to a particular application.

A separate direction to charge shall be filed for each fee. Each such direction to charge a fee shall be transmitted on a separate sheet of paper and, in the case of fees based on modification of claims shall include the best estimate of the fee due. Failure to include such an estimate provides the basis for a refusal to enter any amendment transmitted therewith, as an incomplete response. Where variable fees are involved inclusion of a direction to charge or credit a deficiency or overpayment would appear appropriate.

An issue fee will be charged to an account until a notice of allowance has been forwarded and a reply to that notice received.

For the purposes of determining the fee due the Patent Office, a claim will be treated as dependent if it contains reference to one other claim in the application. A claim determined to be dependent by this test will be entered if the fee paid reflects this determination. This does not, however, prevent the rejection of such a claim as improper, if, in fact, it is not a dependent claim.

EDWARD J. BRENNER,
Apr. 12, 1966. *Commissioner of Patents.*

[825 O.G. 1183]

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(50) DEPOSIT ACCOUNTS

The practice instituted on May 1, 1966, pursuant to the notice of February 23, 1966 (824 O.G. 1200), whereby statutory fees may be charged against deposit accounts, and such accounts are closed if overdrawn, has resulted in certain difficulties for the Patent Office and deposit account holders. It has been decided therefore to modify that practice as indicated below.

As was pointed out in that notice, the charging of a fee against an overdrawn account cannot be considered as payment of the fee until a proper balance is restored or payment is made in some other way. Accordingly, deposit account holders who charge such fees must assume the risk of losing vital dates if they do not maintain a proper balance in their accounts at all times.

Apart from this, however, the overdrawing of an account places a burden on the Patent Office, particularly where a number of items are charged after the overdraft occurs, and it is appropriate that those who are responsible for causing such a condition should bear the cost of correcting it. In view of this fact, and of the hardship frequently caused if an account is permanently closed, the practice of closing deposit accounts merely because they are overdrawn will be discontinued, effective August 1, 1966. In lieu thereof an overdrawn account will be immediately suspended and no charges will be accepted against it until a proper balance is restored, together with a payment of ten dollars to cover the work done by the Patent Office incident to suspending and reinstating the account and dealing with charges which may have been made in the meantime. It is expected, however, that reasonable precautions will be taken in all cases to avoid overdrafts, and if an account is suspended repeatedly it will be necessary to close it.

Similarly, because of the burden placed on the Patent Office incident to the operation of deposit accounts, a charge of ten dollars will be made for opening each new account.

EDWARD J. BRENNER,
June 23, 1966. *Commissioner.*

[828 O.G. 377]

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(59) WITHDRAWAL OF ATTORNEY

Attorneys and agents are reminded that by notice published April 18, 1967, in 837 O.G. 667, requests for permission to withdraw as attorney or agent of record, pursuant to Rule 36, should be submitted in triplicate (original and two copies) and should indicate thereon the attorney or agent's present mailing address. The Group No. should also appear on all such requests.

JOSEPH F. NAKAMURA,
Sept. 27, 1973. *Acting Solicitor.*

[915 O.G. 1164]

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(111) MAIL DELAYS AND PETITIONS TO REVIVE

Since applications that become abandoned unintentionally present burdens to both the Patent Office and the applicant or his representatives, a simplified procedure has been devised to alleviate these burdens when the abandonment results from a delay in the mails. This procedure provides for an automatic petition to revive or petition to accept the delayed payment of issue fee.

It is suggested that when a communication, complying with the circumstances enumerated below, is mailed to the Patent Office more than three calendar days prior to the due date, a conditional petition be attached to the communication. If the communication is received in the Patent Office after the due date and the application becomes abandoned, the conditional petition will become effective, subject to the following requirements. The petition must include (1) an authorization to charge a deposit account for any required fees, including the petition fee (35 U.S.C. 41(a) 7), and (2) an oath or declaration signed by the person mailing the communication and also signed by the applicant or his registered representative stating that the communication and petition were either placed in the United States mail as first class or air mail, or placed in the mail outside the United States as air mail. Since mail handled in this manner may reasonably be expected to reach the Patent Office within three days of posting, any mail delays beyond such time will be considered to constitute unavoidable delay and sufficient cause to grant a petition to revive (35 U.S.C. 133) or a petition to accept delayed payment of an issue fee (35 U.S.C. 151).

The circumstances under which this procedure may be used are those where the communication, if timely filed, (1) would be a proper and complete response to an action or request by the Patent Office, and (2) would stop a period for response from continuing to run. Accordingly, this procedure would be appropriate for:

1. A response to a non-final Office action.

2. A response to a final Office action in the form of an amendment that cancels all rejected claims or otherwise prima facie places the application in condition for allowance.
3. A notice of appeal and requisite fee.
4. An appeal brief, in triplicate, and requisite fee.
5. A base issue fee.
6. A balance of issue fee.

Examples of which this procedure would not be appropriate and will not apply include:

1. Application papers.
2. A response to a final Office action other than that indicated in categories 2 and 3, above.
3. Extensions of time.
4. Petitions for delayed payment of either the issue fee or balance of issue fee.
5. Amendments under Rule 312.
6. Priority documents.

Normal petition practices are not affected in those situations where this procedure is either not elected or appropriate.

A suggested format for the conditional petition is shown below:

Applicant(s) ---------- ☐ Petition to revive
Serial No. ---------- ☐ Petition to accept delayed payment of issue fee
Date Filed ----------
For ----------

I hereby certify that the attached communication is being deposited in

☐ the United States mail as first class or air mail
☐ the mail outside the United States as air mail

in an envelope addressed to: Commissioner of Patents, Washington, D.C. 20231, on ----------, which date is more than three (3) calendar days prior to the due date from ---------- (Location), by ---------- (Name of Individual)

In the event that such communication is not timely filed in the United States Patent Office, it is requested that this paper be treated as a petition and that the:

☐ delay in prosecution be held unavoidable—35 U.S.C.133.
☐ delayed payment of the fee be accepted—35 U.S.C. 151.

The petition fee required by 35 U.S.C. 41(a) 7 is authorized to be charged to Deposit Account No. ---------- in the name of ----------.

The undersigned declare further that all statements made herein are true, based upon the best available information; and further, that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

Date ---------- ----------
(Signature of applicant or signature and registration number of Registered Representative)
And
Date ---------- ----------
(Signature of person mailing, if other than the above)

April 13, 1973. WILLIAM FELDMAN,
Deputy Assistant Commissioner for Patents.

[910 O.G. 402]

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(179) EMERGENCY SITUATION IN THE U.S. POSTAL SERVICE

In view of the present emergency situation in U.S. postal service, the U.S. Patent Office is taking the following actions.

In regard to pending applications, the time for taking any action or paying any fee expiring during the period beginning March 16, and ending April 15, 1970, both dates inclusive, is hereby extended for ONE MONTH. However, no extension shall exceed a maximum period for response provided for in the Statutes.

U.S. Department of Commerce Field Offices have been designated, on an emergency basis, as receiving stations for the U.S. Patent Office. All papers should be enclosed in a sealed envelope and deposited in a Field Office. Such papers will be considered as received in the U.S. Patent Office on the day of deposit. The Field Office will date stamp each envelope so deposited, and applicants or their representatives should assure the legibility of the date stamp. Field Offices will place a corresponding date stamp on receipt cards provided by the depositor, which must completely identify the papers deposited.

Field Office deposits should, if possible, be limited to such papers wherein the Patent Statutes do not provide a remedy for failure to obtain a particular date. Examples of these types of papers are: checks in payment of issue fees, new application papers wherein priority dates or statutory bars may be involved, amendments where the six month statutory period for response is about to expire, etc.

The Field Office in New York designated to receive papers for the U.S. Patent Office is located at:

41st Floor, Federal Office Bldg.
26 Federal Plaza, Foley Square
New York, N.Y.

The designated Field Office in Hartford, Connecticut is located at:

Room 610–B Federal Office Bldg.
450 Main St.
Hartford, Conn.

The addresses of Field Offices in other cities are listed in local directories and are available upon inquiry to the Commissioner of Patents.

RICHARD A. WAHL,
Mar. 19, 1970. *Acting Commissioner of Patents.*

[872 O.G. 1383]

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(180) PATENT OFFICE—POSTAL SERVICE

In view of the return to normal operations of the United States postal service, the Notice of Mar. 19, 1970 (published in the OFFICIAL GAZETTE of Mar. 24, 1970, vol. 872, No. 4) is hereby revised.

After Apr. 15, 1970, the U.S. Department of Commerce Field Offices will no longer be designated as receiving stations for the U.S. Patent Office. Accordingly, after the abovenoted date, all letters or other papers relating to patent and trademark cases will be considered as received in the U.S. Patent Office only if they are filed in accordance with Rule 6 of the Rules of Practice in Patent Cases as amended Nov. 26, 1969.

All other provisions of the Notice of Mar. 19, 1970 and the Notice of Mar. 26, 1970, relating to Trademarks, remain in effect.

WILLIAM E. SCHUYLER, JR.
Mar. 27, 1970. *Commissioner of Patents.*

[873 O.G. 319]

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(181) FILE HISTORY OF APPLICATIONS AFFECTED BY POSTAL EMERGENCY

As a result of the postal emergency, the time for taking any action or paying any fee in the U.S. Patent Office expiring between the dates of March 16, 1970 and April 15, 1970, both dates inclusive, was automatically extended for one month, provided it did not exceed a maximum period for response provided in the Statutes. (See O.G. of March 24, 1970 or March 31, 1970, 872 O.G. 1383 and April 7, 1970, 873 O.G. TM 2.)

Since this extension of time was automatic there will be nothing in the individual files to indicate that a paper filed

during that period was, in fact, timely though it was received later than its apparent due date.

In order to provide a complete history in the affected files and to dispel any question as to abandonment in the record of a patented file, applicants or their attorneys are requested to file a paper explaining these circumstances. A separate paper should be filed in each case so affected (identified by Serial No., filing date, title and applicant's name) and may be merely a copy of the notice which authorized the one-month extension or should specifically refer to and identify that notice.

RICHARD A. WAHL,
Apr. 27, 1970. *Assistant Commissioner of Patents.*

[874 O.G. 688]

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(182) U.S. DEPARTMENT OF COMMERCE FIELD OFFICES TO SERVE AS RECEIVING STATIONS ONLY IN DECLARED EMERGENCIES

During the recent postal emergency, Field Offices of the U.S. Department of Commerce were designated as receiving stations for the U.S. Patent Office (according to the Notices of March 19, 1970, 872 O.G. 1383 and March 26, 1970, 873 O.G. TM 2). In view of the subsequent resumption of normal postal operations, that emergency arrangement was discontinued in accordance with the notice of March 27, 1970, 873 O.G. 319. After April 15, 1970, the normal practice with respect to the filing of all letters and other papers relating to patent and trademark matters in the U.S. Patent Office was resumed.

The Patent Office has received suggestions proposing that the Field Offices continue to serve as receiving stations for the U.S. Patent Office. These suggestions have received careful and sympathetic consideration. However, it has been concluded that any activities of the Field Offices in this connection must be restricted, in the future, to any emergency officially announced by the Patent Office as requiring such action.

RICHARD A. WAHL,
Apr. 27, 1970. *Acting Commissioner of Patents.*

[874 O.G. 688]

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(183) PATENTS AND TRADEMARKS

Relief in Cases Affected by the Postal Emergency of March 1970

On June 30, 1971, President Nixon signed into law Public Law 92-34.

Public Law 92-34 requires claims for the benefit of an earlier filing date (Section 1.) and requests for such other relief as may be appropriate (Sec. 2.) to be filed in the Patent Office within 6 months after enactment, that is by December 30, 1971. Failure to file a statement within the noted period will result in loss of right to take advantage of the benefits of the law. Further explanation or evidence may be required at a subsequent time. Public Law 92-34 provides relief only for situations caused by the postal emergency which began on March 18, 1970, and ended on or about March 30, 1970, and for which there is no remedy under existing law.

The following explanation is designed to serve as a guide for persons desiring relief under the law.

The verified statement required to be filed under sections 1 and 2 of the law may be by any of the following:

(a) Applicant(s) for patent or trademark registration;
(b) Patentee(s) or trademark registrant;
(c) Owner(s) of record.

In cases involving plural inventors, statements made under (a) or (b) must be signed by all inventors.

The verified statement must specify the particular earlier date of receipt in the Patent Office to which the applicant, patentee or trademark registrant, or owner of record believes his application, fee or other paper would be entitled except for the delay caused by the postal emergency of March, 1970. The statement must be verified, that is, in the form of an oath or declaration. (37 CFR 1.68 (Patent Rule 68) and 2.20 (Trademark Rule 2.20).)

Evidence will not normally be required or considered by the Patent Office regarding a claimed filing date of March 18, 1970, or later, in applications actually filed before June 1, 1970. Claims for earlier filing dates in cases actually filed after June 1, 1970, or claiming a date prior to March 18, 1970, will be considered prima facie unreasonable unless an acceptable explanation of the basis for the claim is filed in the Patent Office with the claim or within 1 month or such longer time as may be prescribed by the Commissioner. Any claim not accepted by the Patent Office because it is obviously defective on its face or unreasonable may be subjected to further review by petition to the Commissioner.

The statement should adequately identify the involved application, patent, or trademark registration by including the name of the applicant, patentee or registrant, title of the invention or an identification of the mark, serial number, filing date, group art unit number and any other identifying data such as status of the case (e.g., awaiting first action, amendment, brief, etc.). Acceptable statements will be acknowledged, made of record and retained in the Patent Office files.

When practical, earlier filing dates accorded under this law, as well as the originally granted filing dates, will be identified on ensuing patents and trademark registrations. These dates will also be included in the OFFICIAL GAZETTE in connection with patents, trademark registrations and trademarks published for opposition. In other cases, such as applications in issue prior to filing of a claim, the patent or trademark registration number and claimed filing dates will be published in the OFFICIAL GAZETTE after December 30, 1971.

Patents issued with earlier filing dates afforded by this law will not be effective as prior art as of such earlier filing dates under subsection 102(e) of title 35 of the United States Code.

In a pending patent application in which a claim for an earlier filing date has been acknowledged under this law, applicants need not file a Rule 131 affidavit to overcome a reference having an effective filing date between the "earlier" and the actual filing date of the application. Intervening references of this type will be cited but not applied by the examiner. Although a statement claiming an earlier date is accepted by the Patent Office, the claimed earlier date may be called into question in subsequent inter partes proceeding in the Patent Office or in the courts. In these proceedings, the applicant or owner may be required to present further evidence establishing the filing date to which the application is entitled. In such cases a definite determination shall be made as to whether the applicant is entitled to the earlier date under the law.

In cases where a patent application or an application for registration or late renewal of a trademark is determined to have become abandoned for failure to meet a statutory time limit because of the postal emergency, the application will automatically be restored to pending status by the acceptance of the request, and prosecution or other processing of the application will be resumed. Similarly, if a trademark registration is determined to have been cancelled for failure to meet the statutory time limit within which to file the affidavit required under section 8 of the Trademark Act (15 U.S.C. 1058a) because of the said emergency, the order for cancellation will be rescinded.

As explained in the notice of January 26, 1971 (882 O.G. 1342), applicants who may be entitled to earlier filing dates should note that a change in their U.S. filing date might, in turn, alter the date of expiration of the 6- and 12-month periods for filing applications abroad under provisions of the Paris Convention for the Protection of Industrial Property.

WILLIAM E. SCHUYLER, JR.,
Commissioner of Patents.

Dated: July 14, 1971.
JAMES H. WAKELIN, JR.,
Assistant Secretary for Science and Technology.

[FR Doc. 71-10469; Filed 7-22-71; 8:52 a.m.]

36 F.R. 13694; July 23, 1971

[889 O.G. 1064]

(199) PUBLIC LAW 92-132

[92nd Congress, S. 1253]

October 5, 1971

AN ACT

85 Stat. 364

To amend section 6 of title 35, United States Code, "Patents," to authorize domestic and international studies and programs relating to patents and trademarks.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That section 6 of title 35, United States Code, is amended to read as follows:

Patents, trademarks. International programs, U.S. participation. 66 Stat. 793.

"§ 6. *Duties of Commissioner*

"(a) The Commissioner, under the direction of the Secretary of Commerce, shall superintend or perform all duties required by law respecting the granting and issuing of patents and the registration of trademarks; shall have the authority to carry on studies and programs regarding domestic and international patent and trademark law; and shall have charge of property belonging to the Patent Office. He may, subject to the approval of the Secretary of Commerce, establish regulations, not inconsistent with law, for the conduct of proceedings in the Patent Office.

"(b) The Commissioner, under the direction of the Secretary of Commerce, may, in coordination with the Department of State, carry on programs and studies cooperatively with foreign patent offices and international intergovernmental organizations, or may authorize such programs and studies to be carried on, in connection with the performance of duties stated in subsection (a) of this section.

Transfer of funds.

"(c) The Commissioner, under the direction of the Secretary of Commerce, may, with the concurrence of the Secretary of State, transfer funds appropriated to the Patent Office, not to exceed $100,000 in any year, to the Department of State for the purpose of making special payments to international intergovernmental organizations for studies and programs for advancing international cooperation concerning patents, trademarks, and related matters. These special payments may be in addition to any other payments or contributions to the international organization and shall not be subject to any limitations imposed by law on the amounts of such other payments or contributions by the Government of the United States."

Approved October 5, 1971.

LEGISLATIVE HISTORY:

HOUSE REPORT No. 92-475 (Comm. on the Judiciary).
SENATE REPORT No. 92-71 (Comm. on the Judiciary).
CONGRESSIONAL RECORD, Vol. 117 (1971):
Apr. 22, considered and passed Senate.
Sept. 28, considered and passed House.

[892 O.G. 1600]

(203) LEGAL JOURNALS

[37 CFR Parts 1, 2]

Withdrawal of Proposed Rule Making Regarding Placing of Announcements

Under date of May 11, 1972, 37 FR 9488 (FR Doc. 72-7160), notice of proposed rule making was given concerning a proposed revision of §§ 1.345(b) and 2.14(b) of Title 37 of the Code of Federal Regulations. The purpose of the proposed revision was to permit persons practicing before the Patent Office to place in legal journals announcements of their availability to act as consultants to or as associates of other lawyers in patent or trademark practice. After careful consideration of all of the comments received on the proposed revision, it has been determined that the proposed revision will not be made at this time and, accordingly, the notice of proposed rule making is canceled and withdrawn.

Dated: Jan. 29, 1973.

ROBERT GOTTSCHALK,
Commissioner of Patents.

Approved: Jan. 29, 1973.

RICHARD O. SIMPSON,
Acting Assistant Secretary for Science and Technology.

[FR Doc. 73-3097; Filed 2-15-73; 8:45 am]

Published in 38 F.R. 32; Feb. 16, 1973

[908 O.G. 784]

(208) CHANGE IN LEGAL HOLIDAYS

Those doing business before the Patent Office are hereby reminded that by Public Law 90—363, 82 Stat. 250, effective January 1, 1971, Section 6103(a) of Title 5, United States Code, was amended to read as follows:

§ 6103. *Holidays*

(a) The following are legal public holidays:
New Year's Day, January 1.
Washington's Birthday, the third Monday in February.
Memorial Day, the last Monday in May.
Independence Day, July 4.
Labor Day, the first Monday in September.
Columbus Day, the second Monday in October.
Veterans Day, the fourth Monday in October.
Thanksgiving Day, the fourth Thursday in November.
Christmas Day, December 25.

Each of the holidays enumerated will constitute "a holiday within the District of Columbia," as referred to in Section 21, Title 35, United States Code.

WILLIAM E. SCHUYLER, JR.,
Commissioner of Patents.

Dec. 2, 1970.

[881 O.G. 1707]

EDITORIAL NOTE: Sec. 6103(c) states that January 20 of each fourth year after 1965, Inauguration Day, is also a legal public holiday.

(209) OFFICE OF THE SECRETARY

[Dept. Organization Order 30-3A]

PATENT OFFICE

Organization and Functions

This order effective December 15, 1972, supersedes the material appearing at 27 FR 11469 of November 21, 1962.

SECTION 1. *Purpose.* This order delegates authority to the Commissioner of Patents and prescribes the functions of the Patent Office.

SEC. 2. *Status and line of authority.* .01 The Patent Office is hereby continued as a primary operating unit of the Department of Commerce. First established as an independent bureau under the direction of a Commissioner of Patents by the general revision of patent laws enacted by Congress July 4, 1836 (5 Stat. 117), it became a bureau of the Department of Commerce by Executive Order of April 1, 1925, in accordance with the authority contained in the act of February 14, 1903 (32 Stat. 830). When the patent laws were codified as Title 35, United States Code, effective January 1, 1953, the Patent Office was continued as an office in the Department of Commerce.

.02 The Commissioner of Patents (hereinafter called the Commissioner), who is appointed by the President by and with the advice and consent of the Senate shall be the head of the Patent Office. He shall be principally assisted by a Deputy Commissioner and four assistant commissioners, whose titles and status are specified below. The First Assistant Commissioner (Deputy Commissioner) and the first two assistant commissioners are provided for by 35 U.S.C. 3 and are appointed by the President by and with the advice and consent of the Senate.

a. The Deputy Commissioner (First Assistant Commissioner under 35 U.S.C. 3).

b. The Assistant Commissioner for Patents (an assistant commissioner under 35 U.S.C. 3).

c. The Assistant Commissioner for Trademarks (an assistant commissioner under 35 U.S.C. 3).

d. The Assistant Commissioner for Legal Affairs.

e. The Assistant Commissioner for Administration.

.03 The Deputy Commissioner or, in the event of a vacancy in that office, the assistant commissioner appointed under 35 U.S.C. 3 who is senior in date of appointment, shall act as Commissioner during a vacancy in that office until a Commissioner is appointed and takes office. In the absence of the Commissioner, the Deputy Commissioner shall act as Commissioner. If the Deputy Commissioner is likewise absent or that office is vacant, one of the assistant Commissioners appointed under 35 U.S.C. 3 or the Assistant Commissioner for Legal Affairs or the Solicitor of the Patent Office shall act as Commissioner in an order of precedence prescribed by the Commissioner.

.04 The Commissioner shall report and be responsible to the Assistant Secretary for Science and Technology.

SEC. 3. *Delegation of authority.* .01 Pursuant to the authority vested in the Secretary of Commerce by 35 U.S.C. 3 and Reorganization Plan No. 5 of 1950, the functions of the Patent Office and its officers specified in Title 35 of the United States Code, as amended, are hereby vested in the Secretary of Commerce and redelegated to the Commissioner of Patents.

.02 Pursuant to the authority vested in the Secretary of Commerce by law, the Commissioner of Patents is hereby delegated authority to perform the following functions vested in the Secretary of Commerce.

a. The functions in Title 15, Chapter 22 of the United States Code, which pertain to trademarks.

b. The functions in Executive Order 10096 of January 23, 1950, and the Executive Order 10930 of March 24, 1961, which pertain to inventions made by Government employees.

c. The functions in 42 U.S.C. 2181 and 2182, which pertain to inventions relating to atomic weapons, and in 42 U.S.C. 2457, which pertain to property rights in inventions made in performance of work under contract for the National Aeronautics and Space Administration.

d. Such functions under other authorities of the Secretary of Commerce as are applicable to performing the functions assigned in this order.

.03 Exercise of the functions delegated in paragraphs .01 and .02 of this section shall be subject to such policies or directions as may be prescribed by the Secretary of Commerce or the Assistant Secretary for Science and Technology.

.04 The Commissioner of Patents may, except as precluded by law or regulation, redelegate his authority to employees of the Patent Office subject to such conditions in the exercise of the delegated authority as he may prescribe.

SEC. 4. *Functions.* The Patent Office shall perform the following functions:

.01 Examine applications for patent to determine if they meet the requirements of law for the issuance of patents and, upon such determination, granting patents.

.02 Administer special laws and regulations as to secrecy of certain inventions, licenses for foreign filing, and those relating to atomic energy and space technology.

.03 Decide the ownership of patents and the rights to inventions made by Government employees, as provided by Executive Orders 10096 and 10930.

.04 Provide for the publication, storage, dissemination, and exchange of patents and related documentation.

.05 Maintain systems and facilites providing appropriate access to United States and foreign patents and other technical literature for use of the examiners and the public.

.06 Examine applications for the registration of trademarks to determine their entitlement to registration under the law; give public notice of trademarks allowed for registration and publish registered trademarks; maintain the principal and supplemental registers of trademark registrations, and provide for public access to such registers and related trademark records.

.07 Issue patents and certificates of trademark registration.

.08 Reissue defective patents and issue certificates of correction of patents and trademark registrations.

.09 Maintain records as to proprietary interests in patents and trademarks and applications therefor.

.10 Carry on or authorize studies and programs, separately or in coordination with other United States, foreign and international agencies, regarding domestic and international patent and trademark law.

.11 Perform other functions required, or which the Commissioner deems necessary and proper, in exercising the authority delegated herein.

Effective date: December 15, 1972.

GUY W. CHAMBERLIN, JR.,
Acting Assistant Secretary
for Administration.

[FR Doc. 73-320; Filed 1-5-73; 8:45 am]

[Dept. Organization Order 30-3B]

PATENT OFFICE

Organization and Functions

This order effective December 15, 1972, supersedes the material appearing at 36 FR 9078 of May 19, 1971.

SECTION 1. *Purpose.* This order prescribes the organization and assignment of functions within the Patent Office. Department Organization Order 30-3A prescribes the scope of authority and functions.

SEC. 2. *Organization structure.* The principal organization structure and line of authority of the Patent Office shall be as depicted in the attached organization chart. A copy of the organization chart is attached to the original document on file in the Office of the Federal Register.

SEC. 3. *Office of the Commissioner.* The Commissioner determines the policies and directs the programs of the Patent Office and is responsible for the conduct of all activities of the Patent Office. He is principally assisted by Deputy Commissioner and four Assistant Commissioners who shall have the main duties as specified below:

a. The Deputy Commissioner (First Assistant Commissioner under 35 U.S.C. 3) shall assist the Commissioner in the direction of the Patent Office with immediate responsibility for the Office of Petitions and shall perform the duties of the Commissioner in the latter's absence.

b. The Assistant Commissioner for Patents (an assistant commissioner under 35 U.S.C. 3) shall provide administrative and policy direction for the patent examining and related operations which consist of the organizational elements enumerated in section 5 of this order. He is assisted by a Deputy Assistant Commissioner who shall, among other duties, have immediate responsibility for the patent examining groups and shall perform the duties of the Assistant Commissioner during the latter's absence.

c. The Assistant Commissioner for Trademarks (an assistant commissioner under 35 U.S.C. 3) shall provide administrative and policy direction to the trademark registration and related operations which consist of the organizational elements enumerated in section 6 of this order.

d. The Assistant Commissioner for Legal Affairs shall be the chief law officer of the Patent Office and as applicable shall provide administrative and policy direction to the organizational elements enumerated in section 7 of this order. Pursuant to Department Organization Order 10–6, he shall be subject to the overall authority of the Department's General Counsel with respect to legal and legislative matters involving the Patent Office, other than in connection with the issuance of patents or the registration of trademarks.

e. The Assistant Commissioner for Administration shall be the principal advisor to the Commissioner on the formulation and application of management policies and shall provide administrative, management, and operational support services to components of the Patent Office. In addition, he shall provide administrative and policy direction to a staff assigned to his office as well as to the organizational elements enumerated in section 8 of this order. He shall be assisted by a Deputy Assistant Commissioner who shall perform the duties of the Assistant Commissioner during the latter's absence.

SEC. 4. *Office reporting to the Commissioner.* .01 The Offices of Petitions shall receive, docket, maintain records, and take other appropriate action with respect to petitions to the Commissioner submitted under applicable law and regulations; assign petitions to appropriate officials for decision or recommend and prepare decisions for review and approval by the Deputy Commissioner; and recommend changes in office policy, practices, and procedures, where the need for such appears evident from the records of the office.

.02 The Office of Government Inventions and Patents shall administer Executive Order 10096, as amended by Executive Order 10930 and related regulations, including the rendering of final decisions on the ownership of patents and the rights to inventions made by Government employees, and advise the Commissioner on matters involving the Committee on Government Patent Policy (of the Federal Council for Science and Technology). It shall also conduct research, liaison, and coordinate functions needed to carry out Executive Order 10096 and to advise the Commissioner on Committee matters; provided executive secretariat support to the Committee; and assist in the development and formulation, to the extent appropriate, of a uniform Government-wide policy.

.03 The Office of Advanced Systems Development shall apply analytical basic research techniques to the development of new machine-assisted experimental search, retrieval, and display systems; to the exploration and application of advanced technology for the betterment of operating systems; and to increasing the effectiveness of technical information dissemination and accessing measures. This work is directed primarily to providing solutions to hitherto unresolved problems and to the development of experimental or test applications, for simulations of original techniques or operations. It shall assist in the installation, pilot use, and evaluation of experimental systems in operating environments.

.04 The Office of Information Services shall advise and represent the Commissioner on information matters; conduct programs fostering public understanding of the American patent system and the functions, services and administrative publications of the Patent Office; develop publication policies; provide direction and assistance in developing new and revised publications; and assure conformity with policies, regulations, and standards concerning publications and publication practices.

SEC. 5. *Offices reporting to the Assistant Commissioner for Patents.* .01 The Office of Patent Program Control shall develop procedures for and establish quality, quantity, and other performance standards relating to the conduct of the patent examination and classification functions; establish program activity targets and continually evaluate status against program objectives; provide training to examiners in patent practices and procedures; and monitor compliance with examination and classification standards and procedures.

.02 The Office of Patent Classification shall develop, implement, and maintain subject matter classification systems for patent search files of prior art; evaluate and adapt experimental or other search systems developed elsewhere; determine requirements for and initiate procurement of foreign patent and literature abstracting services for use by examiners; and provide technical specifications, guidance, advice, and assistance to the contracting officer in such procurements; coordinate the classification of U.S. and foreign patent documents and nonpatent literature; and participate in developing and fostering harmonization of the United States and the International Patent Classification systems.

.03. The Examining Groups shall examine applications for patents to ascertain if the applicants are entitled to patents under the law and grant patents to those so entitled. Each examining group shall perform this function for patent applications falling within the generic category assigned to it. The number of examining groups and the coverage of the generic categories shall be determined by the Commissioner.

SEC. 6. *Offices reporting to the Assistant Commissioner for Trademarks.* .01 The Office of Trademark Program Control shall develop guidelines governing trademark examining procedures; establish program activity targets and continually evaluate status against program objectives; and provide instruction in trademark practice and procedures and coordinate trademarks administrative support activities.

.02 The Trademark Trial and Appeal Board shall be responsible for hearing and deciding adversary proceedings involving interfering applications, oppositions to registration, cancellations, and concurrent use proceedings; and for hearing and deciding appeals from final refusals of the trademark examiners to allow the registration of trademarks.

.03 The Trademark Examining Operation shall be responsible for the classification of trademark applications into classes of goods and services, the examination and processing of these applications, and the registration of trademarks, service marks, and certification marks; and maintain the principal and supplemental registers of trademarks.

SEC. 7. *Offices reporting to the Assistant Commissioner for Legal Affairs.* .01 The Office of the Solicitor shall handle all litigation to which the Commissioner is a party and provide other legal services, including advice and assistance on legislative matters, and maintenance of the law library.

.02 The Examiners-in-chief sitting as a Board of Patent Appeals shall be responsible for hearing and deciding appeals from adverse decisions of examiners upon applications for patents.

.03 The Board of Patent Interferences shall conduct patent interference proceedings and make final determinations in the Patent Office as to priority of invention. The Board shall also hear and decide questions concerning property rights in inventions in the atomic energy and space fields brought before it under the provisions of sections 2182 and 2456 (d) and (e) of title 42, U.S.C.

.04 The Office of Legislation shall develop recommendations and advise policy and action concerning matters which may require changes in the patent and trademark laws; review and prepare analysis of bills or drafts of legislation concerning patent or trademark matters received for technical appraisal; prepare legislative proposals and, after appropriate clearance, draft legislation and supporting documentation for clearance with the Department's Office of the General Counsel and the Office of Management and Budget, for consideration by the Congress; and maintain liaison with patent and trademark bar associations, industry, and others concerned with proposed and pending legislation.

.05 The Office of International Affairs shall coordinate the development of policy and program recommendations or positions respecting international patent and trademark affairs, including all proposed new or modified agreements under the Paris Union, Patent Cooperation Treaty, or like treaties; maintain liaison in such matters with the Office of the Secretary, the Department of State, and concerned elements of the public; and participate in negotiating patent and trademark matters in establishing international agreements and in the implementation of programs affecting Patent Office commitments or responsibilities in these areas.

SEC. 8. *Offices reporting to the Assistant Commissioner for Administration.* .01. Management Planning Organizations:

a. The Office of Budget shall formulate, interpret, and execute budgetary and fiscal policies; establish and maintain a comprehensive budget program collaborating with cost center officials in developing budget and fiscal plans; develop and present budget requests; allocate and maintain budgetary accountability of available funds; maintain external liaison

in budgetary matters; and review and evaluate the fulfillment of budget-based program commitments.

b. The Office of Management and Organization shall plan and conduct studies designed to improve organization, methods, procedures, workflow, work measurement, managerial technicals, and resource utilization, or otherwise increase efficiency, effectiveness and economy of operations; develop and manage a system for the issuance of internal administrative orders and instructions; promote development of the Patent Office management improvement program and coordinate the collection, review and submission of reportable plans and accomplishments thereon; coordinate a program for the management and control of external reports; and make special studies as required.

c. The Office of Program Planning and Evaluation shall formulate plans for and coordinate the development of Patent Office-wide long and short range program objectives within the framework of budgetary constraints; define, project, and allocate the manpower and other resources required to achieve Patent Office-wide objectives; develop and monitor a management information system which prescribe code structures for and consolidates all administrative management systems into a single integrated data base to provide information designed to measure performance and achievement against planned objectives; and develop and issue a wide variety of timely internal analytical and interpretive reports to the managers of the Patent Office.

.02 Public service organizations:

a. The Office of Publications shall schedule and manage the processing and movement of allowed patent application files in procuring the creation of full patent text machine language data base and the composition and printing of weekly patent issues and related announcements in the OFFICIAL GAZETTE; provide requisition and scheduling services for trademark publications; monitor the quality or performance by contributing sources and maintain close liaison with U.S. Government Printing Office; and prepare and issue patent grants and periodic publications of patent indexes.

b. The Office of Patent and Trademark Services shall provide the materials and services offered directly to the public, many of which are provided on a fee basis. These shall include recording instruments that transfer property rights to patents and trademarks; furnishing copies of patents, trademark registrations, and office records to examiners, and others in the Office, as well as to the public; providing drafting services; and maintaining appropriate collections of pertinent technical and scientific information such as United States and foreign patents, periodicals, books, and other publications for use by the public. It shall also conduct an initial examination of patent applications for compliance with law and regulation as to form and certain matters of factual content; grant or deny a filing date based on such examination and forward to the Examining Groups those granted a filing date; acknowledge the acceptance or rejection of applications for examination; originate documentation of pending applications; initially assign accepted applications to units of the examining groups for examination; and maintain records on the status and location of all applications.

.03 Administrative service organizations:

a. The Office of Computer Services shall be responsible for providing data processing services to other elements of the Patent Office: This shall include the conduct of systems analysis and equipment evaluation studies directly related to the design and development of systems and programs for applications of computer techniques; preparation or procurement and testing of computer programs, and supplemental data processing services; operation of all general purpose ADP equipment including that which may be approved for use within another organization unit as an integral part of its operations; and maintenance of a comprehensive library of programs, including those developed or procured by other organization units.

b. The Office of Finance shall develop and maintain the financial accounting system of the Patent Office, perform accounting operations for the revenue, trust funds, and appropriation of the Patent Office, including maintenance of general accounts and related fiscal records, preparation of financial statements and reports, audit and certification of vouchers for payment, issuance of deposit account statements, initiation of action to collect amounts due the Patent Office, and administration of the payroll system and related employee accounts; and provide financial advice and opinions.

c. The Office of General Services shall plan and administer a broad Office-wide program of general services, including procurement control; property, space, and facilities management; communications, records, files, mail, and forms management; administrative printing; and clearance of all requirements involving contractual pocurements, including liaison with the Department, in connection therewith.

d. The Office of Personnel shall administer activities relating to recruitment, placement, employee relations, equal employment opportunity programs for employees, training and career development, incentive awards, performance rating, position classification and wage administration, group-management relations, and various employee benefit programs.

.04 The Office of Technology Assessment and Forecast shall continually assess the status of technological activities in all countries; compare inventive activity in the United States relative to other nations; and forecast developments on a world-wide basis.

Effective date: December 15, 1972.

GUY W. CHAMBERLIN, JR.,
Acting Assistant Secretary for Administration.

[FR Doc. 73-321; Filed 1-5-73; 8:45 am]

Published in 38 F.R. 1068, Jan. 8 1973

[907 O.G. 2]

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(210) PATENT OFFICE

Organization and Functions

This order, effective August 1, 1973, amends the material appearing at 38 FR 1068 of January 8, 1973.

Department Organization Order 30-3B, dated December 15, 1972 is hereby amended as follows:

1. SEC. 7. *Offices reporting to the assistant commissioner for legal affairs.*

a. Paragraph .04 is amended to read:

.04 The *Office of Legislation and International Affairs* shall make studies and advise the Commissioner on policy and action concerning matters which may require legislation and on international patent and trademark matters; develop and direct the implementation of related programs; maintain liaison with the Office of the Secretary, the Department of State, and appropriate congressional committees; and conduct negotiations in technical patent and trademark matters in establishing or implementing international agreements.

b. Paragraph .05 is deleted.

2. The organization chart of December 15, 1972 is superseded by the organization chart attached to this amendment. Copy of the Organization Chart is attached to the original of this document on file in the Office of the Federal Register.

Effective date: August 1, 1973.

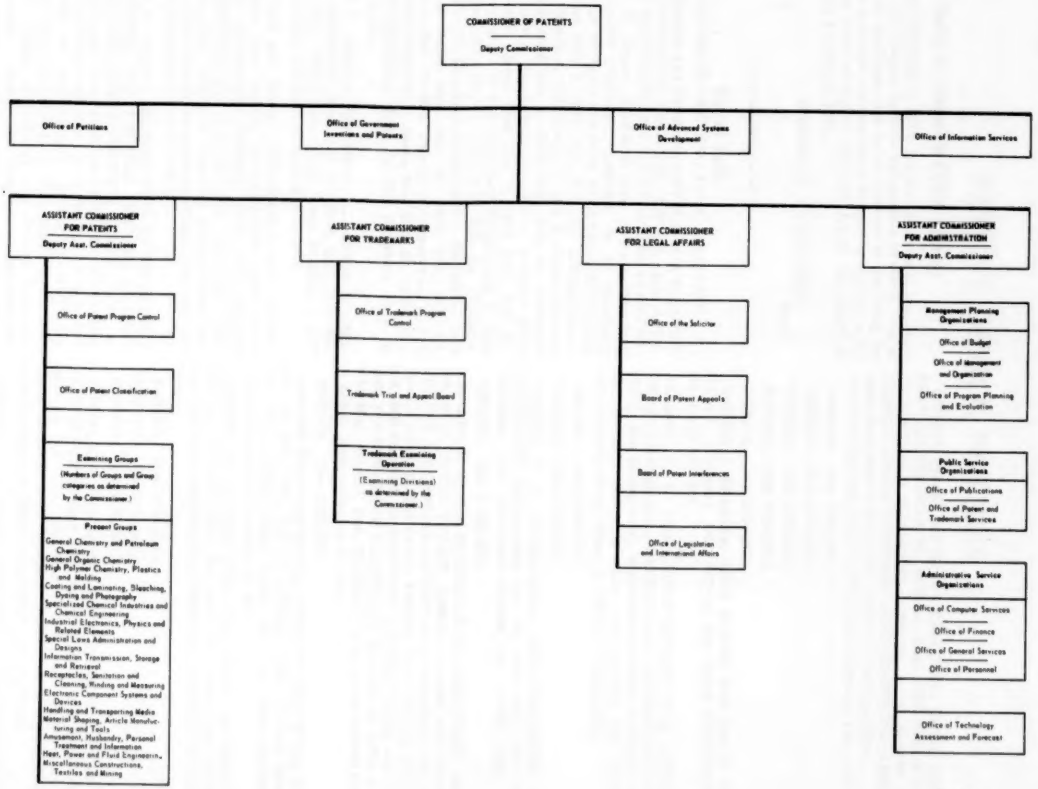
HENRY B TURNER.
Assistant Secretary for Administration.

[FR Doc. 73-19292; Filed 9-11-73; 8:45 am]

[915 O.G. 378]

ATTACHMENT TO DOO 30-38

U.S. DEPARTMENT OF COMMERCE
Patent Office


COMMISSIONER OF PATENTS
Deputy Commissioner
Office of Petitions
Office of Government Inventions and Patents
Office of Advanced Systems Development
Office of Information Services
ASSISTANT COMMISSIONER FOR PATENTS
Deputy Asst. Commissioner
ASSISTANT COMMISSIONER FOR TRADEMARKS
ASSISTANT COMMISSIONER FOR LEGAL AFFAIRS
ASSISTANT COMMISSIONER FOR ADMINISTRATION
Deputy Asst. Commissioner
Office of Patent Program Control
Office of Patent Classification
Examining Groups
(Numbers of Groups and Group categories as determined by the Commissioner.)
Present Groups
General Chemistry and Petroleum Chemistry
General Organic Chemistry
High Polymer Chemistry, Plastics and Molding
Coating and Laminating, Bleaching, Dyeing and Photography
Specialized Chemical Industries and Chemical Engineering
Industrial Electronics, Physics and Related Elements
Special Laws Administration and Designs
Information Transmission, Storage and Retrieval
Receptacles, Sanitation and Cleaning, Winding and Measuring
Electronic Component Systems and Devices
Handling and Transporting Media
Material Shaping, Article Manufacturing and Tools
Amusement, Husbandry, Personal Treatment and Information
Heat, Power and Fluid Engineering
Miscellaneous Constructions, Textiles and Mining
Office of Trademark Program Control
Trademark Trial and Appeal Board
Trademark Examining Operation
(Examining Divisions) as determined by the Commissioner.)
Office of the Solicitor
Board of Patent Appeals
Board of Patent Interferences
Office of Legislation and International Affairs
Management Planning Organizations
Office of Budget
Office of Management and Organization
Office of Program Planning and Evaluation
Public Service Organizations
Office of Publications
Office of Patent and Trademark Services
Administrative Service Organizations
Office of Computer Services
Office of Finance
Office of General Services
Office of Personnel
Office of Technology Assessment and Forecast

Amendment 1
August 1, 1973

PATENT OFFICE NOTICES

Notice to Counsel in CCPA Appeals

On or about January 1, 1974, the revised rules of the Court of Customs and Patent Appeals will become effective. One of the significant revisions will be an increase of the filing fee from $15.00 to $50.00. Counsel filing Notices of Appeal to the Court should plan to deposit the new fee if the appeal is docketed after January 1, 1974.

GEORGE E. HUTCHINSON,
Dec. 5, 1973. *Clerk.*

Patent Suits

Notices under 35 U.S.C. 290; Patent Act of 1952

2,685,536, Starkey and Ransburg, METHOD FOR ELECTROSTATICALLY COATING ARTICLES; **2,794,417,** same, APPARATUS FOR ELECTROSTATICALLY COATING ARTICLES; **2,893,893,** W. W. Crouse, METHOD AND APPARATUS FOR ELECTROSTATIC COATING; **2,893,894,** E. M. Ransburg, METHOD AND APPARATUS FOR ELECTROSTATICALLY COATING, **filed** Mar. 1, 1973, D.C., E.D. Pa. (Philadelphia), Doc. 73–471, *Ransburg Corporation* v. *R & R Metal Finishing Co., Inc.* **Same, filed** Mar. 1, 1973, D.C., E.D. Pa. (Philadelphia), Doc. 73–472, *Ransburg Corporation* v. *Baldwin Hardware Corporation.* **Same, filed** Mar. 1, 1973, D.C., E.D. Pa. (Philadelphia), Doc. 73–474, *Ransburg Corporation* v. *Acro Wire Inc.* **Same, filed** Mar. 1, 1973, D.C., E.D. Pa. (Philadelphia), Doc. 73–475, *Ransburg Corporation* v. *Slaymaker Lock Company, Inc.* **Same, filed** Mar. 23, 1973, D.C., E.D. Pa. (Philadelphia), Doc. 73–654, *Ransburg Corporation* v. *Perkasie Industries Corporation.* **Same, filed** Mar. 23, 1973, D.C., E.D. Pa. (Philadelphia), Doc. 73–653, *Ransburg Corp.* v. *Ajax Products, Inc.*

2,750,055, J. D. Huffines, REFUSE COMPRESSOR MECHANISM FOR VEHICLES, **filed** Oct. 31, 1972, D.C., E.D. Mo. (St. Louis), Doc. 72C682(A), *James Donie Huffines* v. *R-V Industries.* Consent judgment entered May 8, 1973.

2,764,766, Boyle and Taylor, INFLATABLE LIFE RAFT; **2,804,633,** Taylor and Fraebel, INFLATABLE LIFE RAFT COMPRISING IMPROVED CANOPY AND SUPPORTING MEANS THEREFOR, **filed** Apr. 13, 1972, D.C., C.D. Calif. (Los Angeles), Doc. 72–806–R, *American Safety Flight Systems, Inc.* v. *The Garrett Corporation.* Final judgment and order enjoining defendant, May 22, 1973.

2,781,399, S. H. Shapiro, PREPARATION OF SECONDARY AMINES; **2,950,318,** same, PROCESS FOR THE PRODUCTION OF QUATERNARY AMMONIUM COMPOUNDS; **3,136,819,** Shapiro and Plich, PREPARATION OF TERTIARY ALIPHATIC METHYL AMINES; **3,222,402,** M. C. Cooperman, PREPARATION OF N-ALIPHATIC TRIMETHYLENE DIAMINES, **filed** Apr. 24, 1973, D.C., W.D. Tenn. (Memphis), Doc. C–68–40, *Armour & Company and Armour Industrial Chemical Company* v. *Enenco Inc.* Judgment: complaint dismissed with prejudice; judgment between the parties entered by default against plaintiffs and in favor of defendant on defendant's counterclaims as to invalidity and noninfringement, Apr. 24, 1973.

2,790,516, Wright and Butler, VEHICLE DISC BRAKE ASSEMBLY; **2,921,650,** H. J. Butler, DISC BRAKE, **filed** Feb. 7, 1973, D.C., E.D. Mich. (Detroit), Doc. 39637, *Dunlop Holdings Limited* v. *General Motors Corporation.*

2,794,417. (See 2,685,536.)

2,804,633. (See 2,764,766.)

2,835,319, M. J. Fleming, Jr., INFLATABLE SELF-CONTRACTING TIRE BEAD SEATING DEVICE; **2,844,126,** R. H. Gaylord, FLUID ACTUATED MOTOR SYSTEM AND STROKING DEVICE, **filed** Oct. 7, 1969, D.C.N.J. (Trenton), Doc. 1180–69, *Gould, Inc.* v. *Tool Aid Manufacturing Co., Inc.; Meyer Iglewitz and Rita Iglewitz.* Consent judgment for permanent injunction; patents of plaintiff valid and infringed, Feb. 16, 1973.

2,844,126. (See 2,835,319.)

2,844,992, Spound and Martin, RECLINING CHAIR HEADREST CONSTRUCTIONS; **2,958,374,** same, AUTOMATICALLY PROJECTIBLE HEADREST; **2,982,340,** A. M. Spound, RECLINING CHAIR HEADREST CONSTRUCTIONS; **3,024,064,** same, **filed** June 4, 1973, D.C., N.D. Ill. (Chicago), Doc. ——— *Albert M. Spound et al.* v. *The Lane Company, Inc. et al.*

2,893,893. (See 2,685,536.)

2,893,894. (See 2,685,536.)

2,921,650. (See 2,790,516.)

2,950,318. (See 2,781,399.)

2,958,374. (See 2,884,992.)

2,965,040, J. Eisenberg, GEAR PUMPS, **filed** June 6, 1973, D.C.N.J. (Newark), Doc. 787–73, *Eco Pump Corporation* v. *Picut Mfg. Co., Inc.*

2,980,037, E. C. Elsner, SELF-LOCKING BAR ATTACHMENT; **2,984,885,** same, RELEASABLE ATTACHMENT FITTING; **Re. 25,069,** same, WEB-TENSIONING BUCKLE. **filed** Apr. 20, 1973, D.C., C.D. Calif. (Los Angeles), Doc. 73–885–CC, *Aeroquip Corporation* v. *ANCRA Corporation.*

2,984,885. (See 2,980,037.)

2,982,340. (See 2,884,992.)

2,995,437, C. A. Hollingsworth, DEFLUORINATION OF PHOSPHATE ROCK, **filed** Apr. 30, 1973, D.C., S.D. Tex. (Houston), Doc. 73–H–549, *Bordon, Inc.* v. *Olin Corp.*

3,024,064. (See 2, 884,992.)

3,054,447, R. Brydolf, FOLDING DOOR HARDWARE; **3,058,173,** same, PANEL FRAME; **3,169,249,** Brydolf and Kellems, JIG FOR ASSEMBLING POCKET DOOR FRAMES; **3,261,129,** same, PANEL HARDWARE; **3,450,426,** K. K. Kellems, PANEL FRAME CORNER CONNECTOR; **3,597,790,** Kellems and Brydolf, FOLDING DOOR HARDWARE, **filed** Oct. 31, 1972, D.C., S.D. Fla. (Miami), Doc. 72–1722–C–WM, *Acme General Corp.* v. *Labrie Manufacturing Co., Inc.*

3,058,173. (See 3,054,447.)

3,090,050, Fraser and McLean, EYE AND FACE WASH, **filed** Dec. 30, 1971, D.C., N.D. Ill. (Chicago), Doc. 71c3136, *Speakman Co.* v. *Water Saver Faucet Co., Inc.* Enter judgment order dismissing cause, Apr. 25, 1973.

3,103,666, A. R. Bone, TAG ATTACHING APPARATUS, **filed** Apr. 30, 1973, D.C., E.D. Mo. (St. Louis), Doc. 73C264 (1), *Dennison Manufacturing Company* v. *Consolidated Foods Corp.*

3,136,819. (See 2,781,399.)

3,169,249. (See 3,054,447.)

3,222,402. (See 2,781,399.)

3,334,361, R. E. Watson, SHIELDED-HINGE TOILET SEAT CONSTRUCTION, **filed** Sept. 29, 1971, D.C., E.D. Wis. (Milwaukee), Doc. 71–C–495, *Swedish Crucible Steel Company* v. *Bemis Manufacturing Company.* Stipulation of dismissal entered pursuant to Rule 41(a) FRCP, Oct. 6, 1972.

3,358,658, M. V. Dadd, LUBRICANT FLOW METERING MEANS FOR ENGINE ROCKER ARM LUBRICATION SYSTEM; **Re. 25,154,** P. F. Bergmann, MEANS FOR METERING LUBRICATING OIL FROM AN HYDRAULIC TAPPET TO A HOLLOW PUSH ROD; **Re. 25,974,** M. V. Dadd, ROCKER ARM OIL CONTROL MEANS, **filed** Mar. 9, 1973, D.C.N.J. (Newark), Doc. C–330–73, *Johnson Products Inc.* v. *Welles Manufacturing Corp.*

3,432,793, Muska, Schacker and McHattie, GROUNDING CONNECTION FOR ELECTRICAL UNIT, **filed** June 12, 1973, D.C.N.J. (Trenton), Doc. C–831–73, *William A. Muska, James C. Schacker, Earl McHattie and Arrow-Hart, Inc.* v. *Circle F Industries.*

3,438,520, M. A. Williams, SLUG FILLING OF BINS, **filed** May 31, 1973, D.C., W.D. Mo. (Kansas City), Doc. 73CV302–W–4, *Standard Havens, Inc.* v. *CMI Corporation.*

3,450,426. (See 3,054,447.)

3,475,561, Krasin and Greene, TELEPHONE CARRIER SYSTEM HAVING SELF-CONTAINED INDEPENDENTLY ATTACHABLE LINE TAP UNITS, **filed** May 26, 1971, D.C.,

E.D.N.C. (Raleigh), Doc. 1232–C, *Superior Continental Corporation* v. *Anaconda Wire and Cable Company*. Stipulation of dismissal with prejudice, May 1, 1973.

3,578,745, Garnier and Blanc, DENTAL INSTRUMENT, **filed** Jan. 3, 1973, D.C., E.D.N.Y. (Brooklyn), Doc. 73C–12, *Micro-Mega S.A.* v. *Ruthal Industries, Ltd.* A consent judgment was filed May 2, 1973.

3,597,790. (See 3,054,447.)

3,625,711, M. E. Eisenstadt, CYCLAMATE-FREE ARTIFICIAL SWEETENER, **filed** June 11, 1973, D.C., E.D.N.Y. (Brooklyn), Doc. 73–C–847, *Cumberland Packing Corporation* v. *Weight Watchers International, Inc.*

3,638,439, O. C. Niederer, EMBEDDING CABLE LIKE MEMBERS, **filed** May 31, 1973, D.C., S.D. Fla. (Miami), Doc. 73–934–C–PF, *Aqua-Tech, Inc.* v. *Little Fin, Inc. and Robert T. Spearman*.

3,691,727, F. Doerscheln, MULTIPLE SHEET DISPENSING APPARATUS, **filed** June 12, 1973, D.C., N.D. Ohio (Cleveland), Doc. C–73–597, *Heat Sealing Equip. Mfg. Co.* v. *Cleveland-Detroit Corp. and Clamco Corp.*

3,736,197, Messerschmidt, Heyman and Johnsen II, POWDERLESS ETCHING BATH COMPOSITIONS AND ADDITIVES, **filed** May 29, 1973, D.C. Del. (Wilmington), Doc. 4663, *Mona Industries, Inc.* v. *Philip A. Hunt Chemical Corporation*.

Re. 25,069. (See 2,980,037.)

Re. 25,154. (See 3,358,658.)

Re. 25,974. (See 3,358,658.)

Certificates of Correction for the Week of Jan. 1, 1974

P.P. 3,369	3,730,841	3,748,302	3,757,085
3,496,812	3,730,879	3,748,454	3,757,114
3,575,287	3,732,176	3,748,840	3,757,140
3,632,582	3,732,243	3,748,976	3,757,410
3,649,719	3,732,328	3,749,171	3,757,579
3,653,259	3,733,630	3,749,172	3,758,233
3,657,066	3,733,704	3,749,483	3,758,291
3,666,022	3,734,675	3,749,673	3,758,420
3,676,146	3,734,682	3,749,801	3,758,502
3,678,167	3,734,720	3,749,803	3,758,585
3,685,806	3,735,003	3,750,179	3,758,693
3,686,217	3,735,281	3,750,239	3,758,695
3,687,026	3,735,987	3,751,242	3,759,062
3,687,998	3,736,047	3,751,337	3,759,176
3,691,096	3,736,878	3,751,420	3,759,217
3,691,357	3,737,343	3,751,469	3,759,314
3,696,161	3,737,439	3,751,513	3,759,380
3,701,701	3,737,578	3,751,761	3,759,626
3,705,926	3,739,027	3,751,925	3,759,650
3,706,696	3,739,498	3,752,199	3,759,714
3,707,993	3,739,905	3,752,409	3,759,914
3,708,550	3,739,941	3,752,477	3,759,997
3,709,654	3,740,155	3,752,563	3,760,153
3,718,384	3,740,264	3,753,657	3,760,252
3,719,446	3,741,134	3,753,697	3,760,273
3,721,680	3,741,731	3,753,897	3,760,367
3,722,737	3,741,921	3,753,999	3,760,807
3,724,711	3,742,477	3,754,035	3,761,006
3,725,343	3,742,565	3,754,126	3,761,206
3,725,382	3,742,824	3,754,453	3,761,344
3,725,548	3,745,137	3,754,599	3,761,890
3,725,710	3,745,592	3,755,064	3,762,365
3,725,984	3,745,917	3,755,102	3,762,524
3,726,634	3,745,986	3,755,207	3,762,816
3,726,858	3,746,212	3,755,211	3,763,068
3,727,608	3,746,725	3,755,229	3,763,107
3,727,992	3,746,759	3,755,303	3,763,114
3,728,112	3,746,925	3,755,378	3,763,129
3,728,386	3,747,093	3,755,442	3,763,341
3,728,561	3,747,156	3,755,575	3,763,815
3,728,564	3,747,191	3,755,978	3,763,874
3,728,614	3,747,253	3,755,986	3,763,932
3,728,650	3,747,449	3,756,151	3,764,071
3,728,696	3,747,605	3,756,269	3,764,159
3,728,697	3,747,938	3,756,658	3,764,369
3,728,712	3,748,168	3,757,051	3,767,073
3,728,892	3,748,233	3,757,060	3,768,001

PATENT EXAMINING CORPS

WILLIAM FELDMAN, Acting Assistant Commissioner

CONDITION OF PATENT APPLICATIONS AS OF DECEMBER 8, 1973

PATENT EXAMINING GROUPS	Actual Filing Date of Oldest New Case Awaiting Action
CHEMICAL EXAMINING GROUPS	
GENERAL CHEMISTRY AND PETROLEUM CHEMISTRY, GROUP 110—M. STERMAN, Director. Inorganic Compounds; Inorganic Compositions; Organo-Metal and Organo-Metalloid Chemistry; Metallurgy; Metal Stock; Electro Chemistry; Batteries; Hydrocarbons; Mineral Oil Technology; Lubricating Compositions; Gaseous Compositions; Fuel and Igniting Devices.	11-24-72
GENERAL ORGANIC CHEMISTRY, GROUP 120—I. MARCUS, Director. Heterocyclic, Amides; Alkaloids; Azo; Sulfur; Misc. Esters; Carbohydrates; Herbicides; Poisons; Medicines; Cosmetics; Steroids; Oxo and Oxy; Quinones; Acids; Carboxylic Acid Esters; Acid Anhydrides; Acid Halides.	8-25-72
HIGH POLYMER CHEMISTRY, PLASTICS AND MOLDING, GROUP 140—A. P. KENT, Director. Synthetic Resins; Rubber; Proteins; Macromolecular Carbohydrates; Mixed Synthetic Resin Compositions; Synthetic Resins With Natural Polymers and Resins; Natural Resins; Reclaiming; Pore-Forming; Compositions (Part) e.g.: Coating; Molding; Ink; Adhesive and Abrading Compositions; Molding, Shaping, and Treating Processes.	8-30-72
COATING AND LAMINATING, BLEACHING, DYEING AND PHOTOGRAPHY, GROUP 160—A. L. LEAVITT, Director. Coating; Processes and Misc. Products; Laminating Methods and Apparatus; Stock Materials; Adhesive Bonding; Special Chemical Manufactures; Special Utility Compositions; Bleaching; Dyeing and Photography.	10-02-72
SPECIALIZED CHEMICAL INDUSTRIES AND CHEMICAL ENGINEERING, GROUP 170—R. FRIEDMAN, Director. Fertilizers; Foods; Fermentation; Analytical Chemistry; Reactors; Sugar and Starch; Paper Making; Glass Manufacture; Gas; Heating and Illuminating; Cleaning Processes; Liquid Purification; Distillation; Preserving; Liquid, Gas, and Solid Separation; Gas and Liquid Contact Apparatus; Refrigeration; Concentrative Evaporators; Mineral Oils Apparatus; Misc. Physical Processes.	7-17-72
ELECTRICAL EXAMINING GROUPS	
INDUSTRIAL ELECTRONICS, PHYSICS AND RELATED ELEMENTS, GROUP 210—N. ANSHER, Director. Generation and Utilization; General Applications: Conversion and Distribution; Heating and Related Art Conductors; Switches; Photography; Motion Pictures; Illumination; Horology; Acoustics; Recorders; Weighing Scales.	5-02-73
SPECIAL LAWS ADMINISTRATION, GROUP 220—R. L. CAMPBELL, Director. Ordnance, Firearms and Ammunition; Radar, Underwater Signalling, Directional Radio, Torpedoes, Seismic Exploring, Radio-Active Batteries; Nuclear Reactors, Powder Metallurgy, Rocket Fuels; Radio-Active Material.	8-11-72
INFORMATION TRANSMISSION, STORAGE AND RETRIEVAL, GROUP 230—J. F. COUCH, Director. Communications; Multiplexing Techniques; Facsimile; Data Processing, Computation and Conversion; Storage Devices and Related Arts.	12-29-72
RECEPTACLES, SANITATION AND CLEANING, WINDING, AND MEASURING, GROUP 240—L. FORMAN, Director. Receptacles; Joint Packing; Conduits; Plumbing Fixtures; Textile Spinning; Food; Agitating; Cleaning; Pressing; Geometrical Instruments; Sound Recording; Winding and Reeling; Measuring and Testing; Indicating.	7-10-72
ELECTRONIC COMPONENT SYSTEMS AND DEVICES, GROUP 250—W. L. CARLSON, Director. Semi-Conductor and Space Discharge Systems and Devices, Electronic Component Circuits; Wave Transmission Lines and Networks; Optics; Radiant Energy; Measuring.	12-26-72
DESIGNS, GROUP 290—R. L. CAMPBELL, Director. Industrial Arts; Household, Personal and Fine Arts.	2-14-72
MECHANICAL EXAMINING GROUPS	
HANDLING AND TRANSPORTING MEDIA, GROUP 310—G. M. FORLENZA, Director. Conveyors; Hoists; Elevators; Article Handling Implements; Store Service; Sheet and Web Feeding; Dispensing; Fluid Sprinkling; Fire Extinguishers; Coin Handling; Check Controlled Apparatus; Classifying and Assorting Solids; Boats; Ships; Aeronautics; Motor and Land Vehicles and Appurtenances; Brakes; Railways and Railway Equipment.	1-22-73
MATERIAL SHAPING, ARTICLE MANUFACTURING, TOOLS, GROUP 320—D. J. STOCKING, Director. Manufacturing Processes, Assembling, Combined Machines, Special Article Making; Metal Deforming; Sheet Metal and Wire Working; Metal Fusion—Bonding, Metal Founding; Metallurgical Apparatus; Plastics Working Apparatus: Plastic Block and Earthenware Apparatus: Machine Tools for Shaping or Dividing; Work and Tool Holders, Woodworking; Tools; Cutlery; Jacks.	10-10-72
AMUSEMENT, HUSBANDRY, PERSONAL TREATMENT, INFORMATION, GROUP 330—A. RUEGG, Director. Amusement and Exercising Devices; Projectors; Animal and Plant Husbandry; Butchering; Earth Working and Excavating; Fishing, etc.; Tobacco; Artificial Body Members; Dentistry; Jewelry; Surgery; Toiletry; Printing; Typewriters; Stationery; Information Dissemination.	1-19-73
HEAT, POWER, AND FLUID ENGINEERING, GROUP 340—M. M. NEWMAN, Director. Power Plants; Combustion Engines; Fluid Motors; Reaction Motors: Pumps; Rotary Engines and Pumps: Heat Generation and Exchange; Refrigeration; Ventilation; Drying; Temperature and Humidity Regulation; Machine Elements; Couplings; Gearing; Bearings; Clutches; Power Transmission; Fluid Handling and Control; Lubrication.	2-12-73
MISCELLANEOUS CONSTRUCTIONS, TEXTILES AND MINING, GROUP 350—T. J. HICKEY, Director. Joints; Fasteners; Rod, Pipe and Electrical Connectors; Miscellaneous Hardware; Locks; Building Structures; Closure Operators; Bridges; Closures; Earth Engineering; Drilling; Mining; Furniture; Supports; Cabinet Structures; Centrifugal Separations; Coating; Textiles; Apparel and Shoes; Sewing Machines.	9-25-72

Expiration of patents: The patents within the range of numbers indicated below expire during December 1973, except those which may have expired earlier due to shortened terms under the provisions of Public Law 690, 79th Congress, approved August 8, 1946 (60 Stat. 940) and Public Law 619, 83rd Congress, approved August 23, 1954 (68 Stat. 764), or which may have had their terms curtailed by disclaimer under the provisions of 35 U.S.C 253. Other patents, issued after the dates of the range of numbers indicated below, may have expired before the full term of 17 years for the same reasons, or have lapsed under the provisions of 35 U.S.C. 151.

Patents ..... Numbers 2,772,415 to 2,775,761, inclusive
Plant Patents ..... Numbers 1,532 to 1,542, inclusive

DEFENSIVE PUBLICATIONS

PUBLISHED JANUARY 1, 1974

Published at the request of the applicant or owner in accordance with the Notice of Dec. 16, 1969, 869 O.G. 687. The abstracts of Defensive Publication applications are identified by distinctly numbered series and are arranged chronologically. The heading of each abstract indicates the number of pages of specification, including claims and sheets of drawings contained in the application as originally filed. The files of these applications are available to the public for inspection and reproduction may be purchased for 30 cents a sheet.

Defensive Publication applications have not been examined as to the merits of alleged invention. The Patent Office makes no assertion as to the novelty of the disclosed subject matter.

T918,001
FLAME RETARDANT MOLDING COMPOSITIONS HAVING DESIRABLE MECHANICAL PROPERTIES

Theodore F. Gray, Jr., 2153 Westwind Drive 37660; James C. Weaver, 1549 Garden Drive 37664; and Marvin A. McCall, 4519 Mitchell Road 37664, all of Kingsport, Tenn.

Continuation of abandoned application Ser. No. 16,953, Aug. 5, 1970. This application Feb. 1, 1971, Ser. No. 111,668

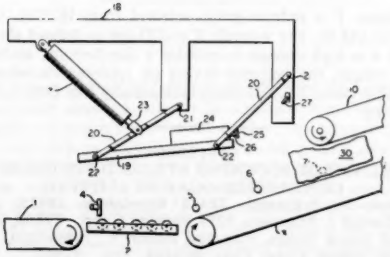
Int. Cl. C08g *51/04*
U.S. Cl. 260—40 R
No Drawing. 15 Pages Specification

A flame retarder which is a brominated diphenyl compound such as decabromodiphenyl ether or decabromodiphenyl carbonate alone or in combination with antimony trioxide is added to poly(tetramethylene terephthalate) or poly(ethylene terephthalate) and glass fiber to provide a composition moldable into a self-extinguishing article with mechanical properties, particularly impact strength, substantially the same as a nonself-extinguishing article molded from only poly(tetramethylene terephthalate) or poly(ethylene terephthalate) and glass fiber alone without a flame retarder. Articles molded from these compositions unexpectedly retain their self-extinguishing character even after prolonged exposure to an elevated temperature.

T918,002
AUTOMATIC SYSTEM FOR PRINTING INFORMATION ON THE TRAILING END OF CONTINUOUSLY TRANSPORTED ARTICLES

Eugene Edward Knoth, 940 Benston Road, Whitehall, Mich. 49461

Filed Jan. 29, 1973, Ser. No. 327,663
Int. Cl. B41f *17/16, 17/34*
U.S. Cl. 101—41
Sheet Drawing. 13 Pages Specification



An automatic continuous printing system for printing information on the trailing end of articles as they are transported through the system comprising a conveyor, means to position the articles a predetermined distance apart on the conveyor, a printing carriage reciprocably mounted to assume a printing position and a non-printing position, detecting means to sense conveyance of an article past a predetermined location immediately in advance of the printing carriage, controlling means responsive to the detecting means to position the printing carriage in its printing position a predetermined distance behind the trailing end of an article as it is conveyed, extensible printing means mounted on the printing carriage which automatically advance in the direction of article conveyance to make contact with the trailing end of an article upon positioning of the printing carriage in its printing position, and means to retract the printing means and to return the printing carriage to its non-printing position upon printing of an article. In a preferred embodiment, the article being printed is a bag filled with particulate material and the bag is compressed during printing by a weighted conveyor positioned above the transporting conveyor, thereby forming a firm trailing end to receive printed information such as lot number.

T918,003
ANTIOXIDANT COMPOSITIONS

Ernest R. Sherwin, 4044 Skyland Drive 37664; Bobby M. Luckadoo, 504 Robindale Lane 37663; and Emma J. Freeman, 1849 Fairoaks Road 37663, all of Kingsport, Tenn.

Continuation-in-part of application Ser. No. 153,838, June 16, 1971. This application Apr. 2, 1973, Ser. No. 347,002

Claims priority; application Argentina, Apr. 11, 1972, 241,401; Canada, May 9, 1972, 141,666; Venezuela, May 26, 1972, 2,675; Mexico, June 14, 1972, 136,283; Australia, June 15, 1972, 43,436; Brazil, June 15, 1972, 3,875; Japan, June 15, 1972, 47/59,100; Great Britain, June 15, 1972, 28,015/72

Int. Cl. A23d *5/04;* A23l *3/34*
U.S. Cl. 426—181
No Drawing. 24 Pages Specification

An antioxidant composition for oils and fats particularly those used for frying is retained in the oil or fat even after many fryings at high temperatures. Included in the composition are

(A) about 60 to 99% by weight of the composition of an antioxidant selected from the group consisting of mono-tertiary-butylhydroquinone, a gallic acid ester selected from propyl, octyl or dodecyl gallates; and blends of these antixodants with butylated hydroxyanisole and butylated hydroxytoluene;

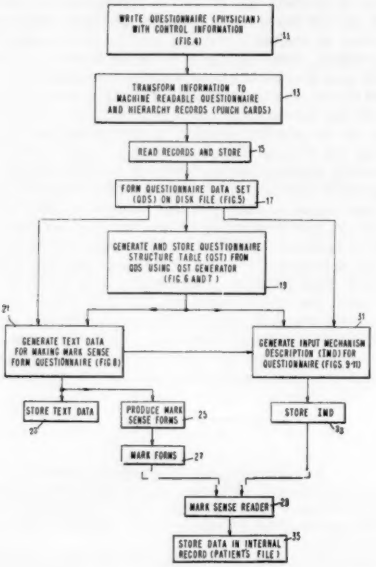
(B) 0 to 34% by weight of the composition of an organic acid synergist selected from the group consisting of citric acid, ascorbic acid, tartaric acid, fumaric acid, and esters thereof, ethylene-diaminetetraacetic acid and its sodium and calcium salts; and

(C) about 0.1 to 5% by weight of a compound from the class consisting of polydimethyl and polydiethyl siloxane having a viscosity of 100 to 100,000 centistokes at 100° F.

T918,004
PROGRAM GENERATOR FOR BRANCHING QUESTIONNAIRE

William M. Chappell, Yorktown Heights, Hugh C. Fallon, Mohegan Lake, Gerald Geortzel, White Plains, and William G. Strohm, Yorktown Heights, N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Continuation of application Ser. No. 213,909, Dec. 30, 1971. This application Apr. 3, 1973, Ser. No. 347,591
Int. Cl. G06f *7/00*
U.S. Cl. 340—172.5
20 Sheets Drawing. 82 Pages Specification


WRITE QUESTIONNAIRE (PHYSICIAN) WITH CONTROL INFORMATION (FIG 4)
11
TRANSFORM INFORMATION TO MACHINE READABLE QUESTIONNAIRE AND HIERARCHY RECORDS (PUNCH CARDS)
13
READ RECORDS AND STORE
15
FORM QUESTIONNAIRE DATA SET (QDS) ON DISK FILE (FIG 5)
17
GENERATE AND STORE QUESTIONNAIRE STRUCTURE TABLE (QST) FROM QDS USING QST GENERATOR (FIG 6 AND 7)
19
21
GENERATE TEXT DATA FOR MAKING MARK SENSE FORM QUESTIONNAIRE (FIG 8)
31
GENERATE INPUT MECHANISM DESCRIPTION (IMD) FOR QUESTIONNAIRE (FIGS 9-11)
STORE TEXT DATA
23
PRODUCE MARK SENSE FORMS
25
STORE IMD
33
MARK FORMS
27
MARK SENSE READER
29
STORE DATA IN INTERNAL RECORD (PATIENTS FILE)
35

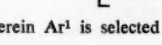
A computer system is provided, as represented by FIG. 3, for automatically generating, in response to a specified tree-structured branching questionnaire, the decode program instructions required by the computer to decode the responses to the respective queries of said questionnaire. The creator of the branching questionnaire specifies same, on a convenient form, via writing the basic information required by the computer to generate the data and programs for producing both the branching questionnaire text and decode program instructions therefor. After the basic information specified by the creator of the questionnaire, along with appropriate control information therefor. is entered into the computer, the computer automatically arranges same to form a questionnaire data set, which is stored on disk file as shown at **17**. The questionnaire data set provides a conveniently addressable compilation of the information entered into the computer. The computer then acts to retrieve from the questionnaire data set, that information defined therein which is basically representative of the tree structure, and transforms this information into a questionnaire structure table as shown at **19**, which table uniquely and unambiguously represents, in a particular tree form arrangement, the essential data required by the computer to automatically generate the decode program instructions. The questionnaire structure table and questionnaire data set are cooperatively employed by the computer to generate an image of the text of the queries of said questionnaire as shown at **21** and **23** and, in association with the position of the respective designated locations or spots in the text of said queries at which a manual response to each query is to be made, to generate at **31** the decode instructions (called IMD's) required by the computer to decode the responses thereto.

T918,005
TRACTABLE AROMATIC POLY(SCHIFF BASES)

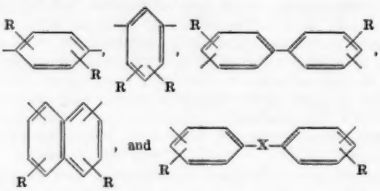
William P. Baker, Jr., deceased, late of Chadds Ford, Pa., by Sara Z. Baker, executrix, Chadds Ford, Pa., and Ronald A. Sahatjian, Chadds Ford, Pa.; said Sahatjian assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

Continuation of application Ser. No. 186,406, Oct. 4, 1971. This application Apr. 12, 1973, Ser. No. 350,644
Int. Cl. C08g *9/06*
U.S. Cl. 260—72.5
No Drawing. 11 Pages Specification

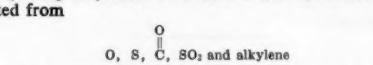
A tractable, aromatic poly(Schiff base) having the recurring structural formula:



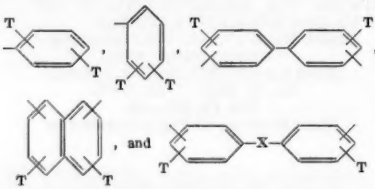
wherein Ar^1 is selected from



wherein R is independently selected from H, Cl, Br and Q, Q being alkyl of 1 to 3 carbon atoms, and X is selected from



of 1 to 3 carbon atoms; wherein Ar^2 is selected from



wherein T is independently selected from H, OH, OQ, Q, Cl and Br, and wherein X and Q are as defined above; and *n* is high enough to provide a film-forming molecular weight, the polymer having an inherent viscosity of at least about 0.2 and being substantially free from crosslinking.

T918,006
METHOD OF SECURING STACKED POLYOLEFIN CONTAINERS AGAINST SLIPPING

James N. Schramm, 12342 Brookshire 70815; and Carroll J. Macalusa, 8295 Bontura Court 70808, both of Baton Rouge, La.; and Robert C. Schumann, Jr., 65 Willow Court, Lake Jackson, Tex. 77566

Filed May 7, 1973, Ser. No. 358,189
Int. Cl. C08f *3/22*
U.S. Cl. 117—94
No Drawing. 5 Pages Specification

A method of securing stacked substantially rigid, self-supporting polyolefin containers such as pails, bottles and

the like against slippage comprising applying a lacquer coating to adjacent contacting portions, such as contacting outer rims of such containers, said lacquer coating consisting essentially of an organic solvent, such as the aromatic hydrocarbons toluene and xylene or chlorinated aliphatic hydrocarbons such as trichloroethylene and ketones such as methyl ethyl ketone, having dissolved or dispersed therein a substantially linear chlorinated polyethylene which contains from about 25 to 50 and preferably from about 36 to 48 weight percent of chemically combined chlorine and has a relative crystallinity of between about 15 and 28 percent when containing about 25 weight percent chlorine and a relative crystallinity of less than about 10 percent when containing about 34 weight percent chlorine; wherein the dried residue of the lacquer coating provides a slip angle between the adjacent contacting surfaces of such containers of between about 10 and 50 degrees, such slip angle being determined by raising one end of the platform on which such containers are supported and determining the angle from the horizontal when the uppermost container commences to slide or move.

T918,007

INTEGRATED CIRCUIT JUNCTION ISOLATION STRUCTURE

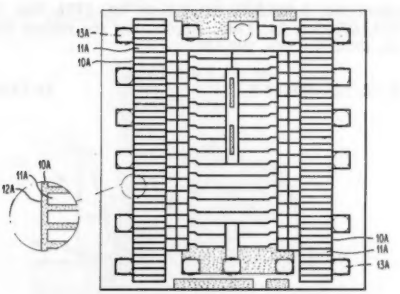
Mario A. Battista, Ridgefield, Conn., and Larry E. Freed, Poughkeepsie, and Richard S. Harbison, William J. Nestork, and James R. Struk, Wappingers Falls, and Daniel Tuman, Beacon, N.Y., assignors to International Business Machines, Inc., Armonk, N.Y.

Continuation of application Ser. No. 239,173, Mar. 29, 1972. This application June 6, 1973, Ser. No. 367,603

Int. Cl. H01l *5/00*

U.S. Cl. 317—235

2 Sheets Drawing. 11 Pages Specification



A planar monolithic semiconductor integrated circuit masterslice structure comprising a surface from which a plurality of regions of different conductivity types extend into the chip to provide the active and passive devices of the circuit and having a substantially continuous isolation region of one of said conductivity types also extending from said surface to form isolation junctions with regions of opposite conductivity types abutting the isolation regions. Substantially all isolation regions surrounding active and passive devices in the circuit have a uniform planar width.

The uniform width of the isolation regions appears to reduce stacking faults and similar crystallographic defects in epitaxial layers in which the integrated circuits are formed. Such faults contribute to "pipes."

T918,008

INTEGRATED CIRCUIT STRUCTURE ELECTRICALLY ISOLATED BY A COMBINATION OF AMORPHOUS SILICON WALLS AND ISOLATING PN JUNCTION

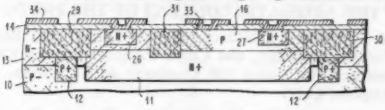
Karl Brack, Bobingen, Germany, and Majid Ghafghaichi and Hans Wimpfheimer, Poughkeepsie, N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed July 27, 1973, Ser. No. 383,229

Int. Cl. H01l *19/00*

U.S. Cl. 317—235 R

1 Sheet Drawing. 15 Pages Specification



A planar monocrystalline silicon integrated circuit structure having a plurality of electrically isolated pockets extending from the silicon substrate surface. Each pocket is isolated by sidewalls of amorphous silicon, formed by the bombardment of the silicon substrate with silicon ions, laterally enclosing an upper portion of the pocket and an isolating junction continuous with said sidewalls enclosing the lower portion of the pocket.

Each isolated pocket is silicon of one conductivity type, and said isolating junction is formed by a silicon region of opposite conductivity type abutting the pocket. The pockets contain regions of only said opposite conductivity type extending from the surface into the pocket but spaced from said sidewalls and isolating junctions. The structure avoids the problem of parasitic capacitances which tend to occur in completely junction isolated integrated circuits along vertical junctions. By limiting the structure to only regions of opposite conductivity type diffused into pockets of said one conductivity type, the structure avoids vertical PN junctions which are adjacent to each other and, thus, are subject to parasitic capacitance effects.

T918,009

METHOD FOR PRODUCING A HIGH STRETCH TEXTURED POLYESTER YARN FOR PACKAGE DYEING

Robert G. Wrye, Rte. 14, 4503 Grace Drive 37664, and Giuliano Gambino, 685 Sherman Place 37660, both of Kingsport, Tenn.

Filed July 30, 1973, Ser. No. 383,762

Int. Cl. D02g *1/02*

U.S. Cl. 57—157 TS

No Drawing. 8 Pages Specification

A method for producing a high stretch multifilament textured yarn of the torque stretch type, the textured yarn retaining skein shrinkages after package dyeing of 20% to 35%. The method includes the steps of feeding the multfilament yarn from a supply source to a false twist device, false twisting the yarn, heat setting the false twisted yarn in a heating zone, removing the false twist after heat setting and feeding the yarn to a take-up package. The improvement comprises overfeeding the multifilament yarn to the take-up package at about 30 to 60 percent. Thereafter, the take-up package may be package dyed under pressure at about 250° to 265° F. to retain such high skein shrinkages. One embodiment of the invention involves the use of a single heater, the multifilament yarn being overfed to the take-up package at about 50 to 60 percent. After package dyeing the take-up package retains 30 to 35 percent skein shrinkage. A second embodiment of the invention involves the use of a second heater, the multifilament yarn being overfed to the second heater by about 40 percent, the yarn being heatset in this second heating zone and then fed to the take-up package. After package dyeing the take-up packages have skein shrinkages of about 20 to 25 percent.

REISSUES

JANUARY 1, 1974

Matter enclosed in heavy brackets [ ] appears in the original patent but forms no part of this reissue specification; matter printed in italics indicates additions made by reissue.

27,856

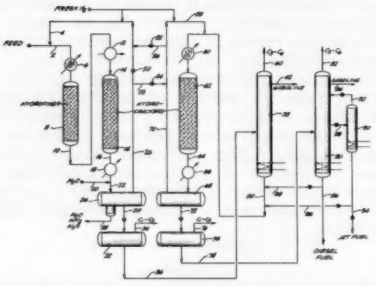
HYDROCRACKING PROCESS WITH REGULATION OF THE AROMATIC CONTENT OF THE PRODUCT

Paul F. Helfrey, Whittier, Nicholas L. Kay and Bernal Peralta, Fullerton, and Cloyd P. Reeg, Orange, Calif., assignors to Union Oil Company of California, Los Angeles, Calif.

Original No. 3,132,090, dated May 5, 1964, Ser. No. 168,058, Jan. 23, 1962. Application for reissue May 27, 1968, Ser. No. 743,535

Int. Cl. C10g *13/02, 13/10*

U.S. Cl. 208—59 **13 Claims**



In the hydrocracking of mineral oils with a Group VIII noble metal hydrocracking catalyst, a relatively aromatic gasoline product is produced by maintaining relatively high hydrogen sulfide/hydrogen ratios in the reaction zone, while relatively non-aromatic products, e.g. jet fuels and/or diesel fuels, are produced by reducing the hydrogen sulfide/hydrogen ratio.

27,857

HYDROCRACKING PROCESS WITH REGULATION OF THE AROMATIC CONTENT OF THE PRODUCT

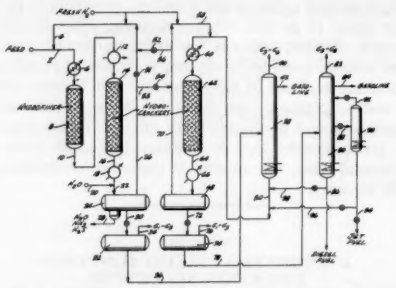
Paul F. Helfrey, Whittier, Nicholas L. Kay and Bernal Peralta, Fullerton, Cloyd P. Reeg, Orange, and Rowland C. Hansford, Yorba Linda, Calif., assignors to Union Oil Company of California, Los Angeles, Calif.

Original No. 3,132,090, dated May 5, 1964, Ser. No. 168,058, Jan. 23, 1962. Application for reissue June 18, 1971, Ser. No. 154,632, which is a continuation of abandoned reissue application Ser. No. 745,645, May 27, 1968

Int. Cl. C10g *13/02, 13/10*

U.S. Cl. 208—111 **7 Claims**

In the hydrocracking of mineral oils with a Group VIII noble metal hydrocracking catalyst, a relatively aromatic gasoline product is produced by maintaining relatively high hydrogen sulfide hydrogen ratios in the reaction zone, while relatively non-aromatic products, e.g. jet fuels and/or diesel fuels, are produced by reducing the hydrogen sulfide/hydrogen ratio.



27,858

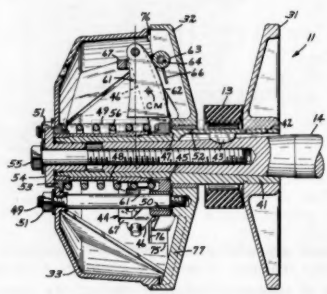
CENTRIFUGAL CLUTCH

Eugene W. Laughlin, Minneapolis, Minn., by Textron, Inc., assignee, Providence, R.I.

Original No. 3,605,510, dated Sept. 20, 1971, Ser. No. 869,165, Oct. 24, 1969. Application for reissue Sept. 20, 1972, Ser. No. 290,631

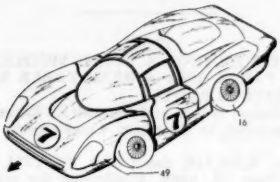
Int. Cl. F16h *55/52*

U.S. Cl. 74—230.17 E **16 Claims**



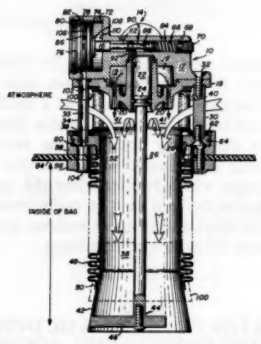
The disclosure is directed to a variable ratio centrifugal clutch having driving and driven assemblies connected by an endless belt. The driving assembly consists of a pair of sheaves affixed to a drive shaft, one being axially stationary and the other being axially movable with respect thereto. The movable sheave forms part of a closed housing which fully encloses a plurality of flyweights pivotally mounted on the shaft for rotation therewith. In response to increases in drive shaft speed, the flyweights swing outward and engage the housing, moving it in its entirety along the shaft to bring the sheaves together.

27,859
TOY CAR
Keiichiro Miura, Tokyo, Japan, assignor to Asahi Toy Co., Ltd., Tokyo, Japan
Original No. 3,541,725, dated Nov. 24, 1970, Ser. No. 753,670, Aug. 19, 1968. Application for reissue Apr. 25, 1972, Ser. No. 247,388
Int. Cl. A63h *17/00*
U.S. Cl. 46—206 10 Claims



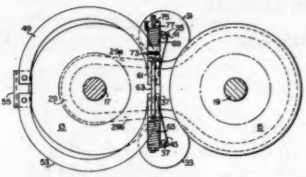
A toy car moved by a repulsive force of spiral spring. The spiral spring is wound by pressing the car downwardly and moving it forwardly, thereby making a gear provided on a driving shaft drive a gear which is connected to an end of the spiral spring through another shaft. The repulsive force of the wound spiral spring is transmitted to driving wheels by means of a gear train.

27,860
ASPIRATOR APPARATUS FOR BAG INFLATION SYSTEMS
Ronald H. Day, Mill Valley, Calif., assignor to Sargent Industries, Inc., Los Angeles, Calif.
Original No. 3,572,974, dated Mar. 30, 1971, Ser. No. 813,660, Apr. 4, 1969, which is a continuation-in-part of Ser. No. 803,178, Feb. 28, 1969. Application for reissue Mar. 13, 1972, Ser. No. 234,149
Int. Cl. F04f *5/48*
U.S. Cl. 417—184 24 Claims



An improved aspirator device for bag inflation systems and the like, which is rotationally symmetric about the axis of the device and includes an annular atmospheric flow path concentric with one or more rings of aspirating jets to provide a high efficiency aspirating function. The aspirator includes a single operation closure component which acts to open the atmospheric flow path upon actuation of the device and close the atmospheric flow path when a predetermined pressure has been built up within the inflated device. Means are provided for allowing a selected inflated device pressure to initiate closure of the atmospheric flow path.

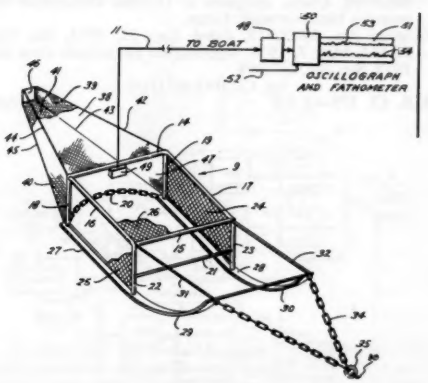
27,861
MOTION TRANSMISSION DEVICE
Charles E. Kraus, Austin, Tex., assignor to Excelermatic, Inc.
Original No. 3,575,058, dated Apr. 13, 1971, Ser. No. 753,941, Aug. 20, 1968, which is a continuation-in-part of Ser. No. 499,560, Oct. 21, 1965. Application for reissue Feb. 16, 1972, Ser. No. 226,991
Int. Cl. F16g *1/24;* F16h *7/12, 55/56*
U.S. Cl. 74—227 18 Claims



A power transmission device having a pair of pulleys connected by a traction transmitting member such as a chain, such chain being of sufficient length to provide intentionally a certain amount of sag between the pulleys with control of both slack and tight side chain pull and control of maximum ratio of tight to slack pull. Continuous tension on both tight and slack sides of the member around the pulley. The pulleys may be of variable pitch type to provide for adjustable speed operation under suitable control.

The chain has longitudinally extending contact surfaces engaging the pulley flanges which lie along the centerline of the chain, are essentially flat, match the pulley flange surfaces, and are positioned between the joints of the chain links.

27,862
MEANS AND METHOD FOR LOCATING SHRIMP AND OTHER MARINE ANIMALS
Albert B. Silchenstedt, Box 255, Rockport, Tex. 78382
Original No. 3,561,150, dated Feb. 9, 1971, Ser. No. 846,545, July 31, 1969, which is a continuation-in-part of abandoned Ser. No. 767,781, Oct. 15, 1968. Application for reissue July 1, 1971, Ser. No. 159,072
Int. Cl. A01k *73/02*
U.S. Cl. 43—4.5 10 Claims



A try net is provided with an acoustic-electrotransducer which transmits electrical oscillations to a remote filter device. The filter device is tuned to isolate the characteristic vibrations produced by selected marine animals and the signals therefrom are transmitted to an indicator.

27,863

VARIABLE RESISTOR OF SLIDING TYPE WITH SWITCH ACTIVATED BY SLIDER

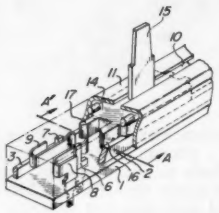
Tadashi Yano, Osaka, and Shunzo Oka, Hirakata, Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Original No. 3,622,934, dated Nov. 23, 1971, Ser. No. 39,738, May 22, 1970. Application for reissue Oct. 3, 1972, Ser. No. 294,505

Claims priority, application Japan, Aug. 8, 1968, 43/68,917; May 30, 1969, 44/52,233; July 22, 1969, 44/71,631

Int. Cl. H01c *9/08*

U.S. Cl. 338—198 12 Claims



A variable resistor of sliding type with switch including a dielectric base having a resistance element and a conductive element, a slider being movable along a predetermined line on the dielectric base, a variable resistor of sliding-type means including the resistance element, the conductive element and a plurality of contactors being provided on the underside of the slider, a switching means including movable and stationary contacts and being provided on at least one of the both end portions of the dielectric base in the predetermined line, and a switch-working means being provided at the slider and being engaged with the movable contacts to actuate the switching means in connection with movement of the slider.

27,864

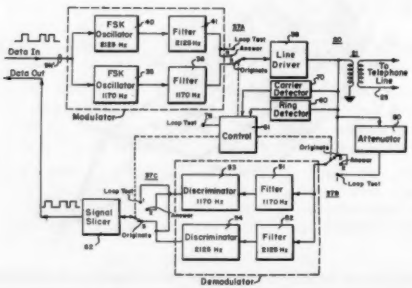
CLOSED LOOP TEST METHOD AND APPARATUS FOR DUPLEX DATA TRANSMISSION MODEM

Steven J. Davis, Ridgefield, and Richard A. Liberman, Stratford, Conn., assignors to General Datacomm Industries, Inc., Norwalk, Conn.

Original No. 3,655,915, dated Apr. 11, 1972, Ser. No. 35,454, May 7, 1970. Application for reissue June 29, 1972, Ser. No. 267,390

Int. Cl. H04m *11/06*

U.S. Cl. 179—2 DP 8 Claims



A duplex data transmission modem is provided having facilities for transmitting data on either a call originate frequency F1 or a call answer frequency F2 while simultaneously receiving data on a call originate frequency F2 and a call answer frequency F1. Control apparatus is provided in the modem for closed loop testing wherein the modem receiver is forced to receive the normal outgoing data modulated carrier signal and return the data signal back to the incoming line and thereby provide loop-back on the analog or tone side of the telephone line interface.

27,865

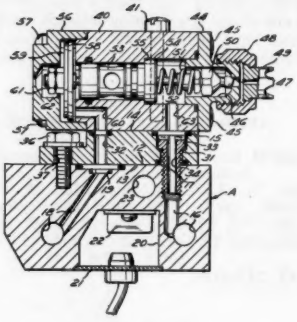
APPLICATOR HAVING A FIXED MODULE WITH STATIC PARTS AND A REMOVABLE MODULE WITH MOVING PARTS

Robert G. Baker, Avon, and Samuel R. Rosen, Lorain, Ohio, assignors to Nordson Corporation, Amherst, Ohio

Original No. 3,570,725, dated Mar. 16, 1971, Ser. No. 776,177, Nov. 15, 1968. Application for reissue Oct. 13, 1972, Ser. No. 297,455

Int. Cl. B67d *3/00*

U.S. Cl. 222—504 27 Claims



A fluid-operated modular apparatus for extruding and applying viscous liquids such as molten adhesives. The apparatus includes a gun in the form of a readily removable module that attaches to a fixed service block module which receives the supply lines for the viscous liquid and the operating air for example. The service block and gun have passages which register when the apparatus is assembled whereby the gun may be easily removed from the fixed service block and replaced without disconnecting any fluid lines or other service equipment.

27,866

APPARATUS FOR THE AUTOMATIC DETERMINATION OF THE COAGULATION, AGGREGATION AND/OR FLOCCULATION, OR THE LIKE, RATES OF FLUIDS, AND NOVEL REACTION INTENSIFYING AGENT FOR USE THEREWITH

Stanford L. Adler, Westchester County, N.Y., assignor to Technicon Corporation, Tarrytown, N.Y.

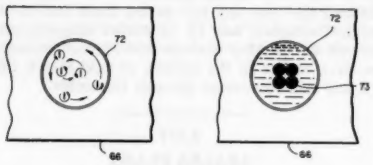
Original No. 3,650,698, dated Mar. 21, 1972, Ser. No. 881,971, Dec. 4, 1969. Application for reissue Dec. 14, 1972, Ser. No. 314,930

Int. Cl. B03c *1/02;* G01n *11/00, 33/16*

U.S. Cl. 23—253 R 11 Claims

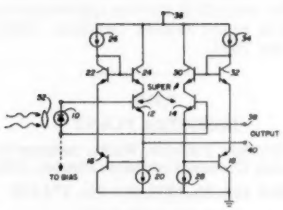
Apparatus for the determination of the coagulation rate or the like of fluids, wherein dispensing means are operable to successively dispense blood plasma samples, in turn and at a precisely metered rate, onto spaced-

apart measured quantities or spots of a dried suspension of a reaction intensifying agent carried on an advancing film strip. The intensifying agent may comprise magnetic iron oxide particles. Subsequent to incubation of the sample-intensifying agent mixture, additional dispensing means are operable to dispense a precisely metered quantity of prothrombin reagent into the film strip. The resulting sample-reagent-intensifying agent mixture is subjected



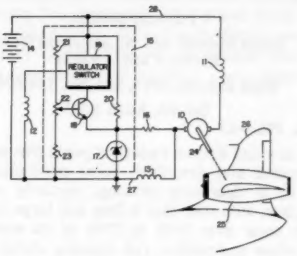
to rotating magnetic fields, with the result that the moving magnetic particles promote mixing and, also, are operative to collect one or more of the fibrin strands, whereby the mixture, which is substantially turbid, undergoes a sharp change in its optical transmission properties, which change is detected by light sensitive means for the measurement of the prothrombin time of the blood plasma sample of interest.

27,867
RADIATION-SENSITIVE CAMERA SHUTTER AND APERTURE CONTROL SYSTEMS
Kenneth E. Years, Plano, Tex., assignor to Texas Instruments Incorporated, Dallas, Tex.
Original No. 3,626,825, dated Dec. 14, 1971, Ser. No. 41,402, May 28, 1970. Application for reissue May 5, 1972, Ser. No. 250,799
Int. Cl. G01j *1/00*
U.S. Cl. 95—10 C **8 Claims**



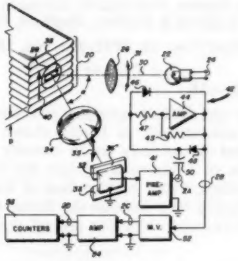
A voltage that varies linearly with light intensity variation is generated by an amplifier having a differential input stage connected to a light responsive diode. Two high gain transistors are included in the differential input stage to provide amplification of the signal currents of the light responsive diode. In a camera shutter and aperture control system, the linearly varying light intensity voltage is amplified to control two threshold detector circuits. An inhibiting circuit prevents one of the threshold detector circuits from responding to the light intensity voltage until the first threshold circuit has completed its desired operation.

27,868
DC SHUNT STARTER GENERATOR
Dennis Allan Porter, Staunton, Va., assignor to General Electric Company
Original No. 3,493,776, dated Feb. 3, 1970, Ser. No. 565,240, July 14, 1966. Application for reissue Jan. 24, 1972, Ser. No. 220,498
Int. Cl. F02n *11/04*
U.S. Cl. 290—31 **9 Claims**



A shunt starter generator is modified to provide the starting characteristics of a series starter generator, by weakening the field by paralleling the series compensating winding with a Zener reference diode in the voltage regulator to effect interruption of the excitation as the armature current falls, thereby allowing the field current to decrease to reduce the back EMF. When the back EMF is reduced, the supply voltage exceeds such back EMF and the armature current and resultant current increase, to provide the high speeds required to ignite and start a jet engine.

27,869
PITCH MATCHING DETECTING AND COUNTING SYSTEM
Samuel P. Willits and William L. Mohan, Barrington, Ill., assignors to Spartanics, Limited, Palatine, Ill.
Original No. 3,581,067, dated May 25, 1971, Ser. No. 780,367, Dec. 2, 1968. Application for reissue Aug. 15, 1972, Ser. No. 279,615
Int. Cl. G06m *9/00*
U.S. Cl. 235—92 SB **28 Claims**



An apparatus for counting stacked sheetlike materials having no sheet separation requirements. The active area of the sensor array is matched to the width of a sheet of the stack and the sensor array caused to traverse the stack, the complex signal output of the sensor array being stripped of the unwanted components in a high gain, diode clamped capacitive input operational amplifier whose square wave output is processed and counted in conventional counting circuits.

PLANT PATENTS

GRANTED JANUARY 1, 1974

Illustrations for plant patents are usually in color and therefore it is not practicable to reproduce the drawing.

3,413

PEACH TREE

Grant Merrill, 416 N. Anderson Road, Exeter, Calif. 93221

Filed Jan. 28, 1971, Ser. No. 110,676

Int. Cl. A01h *5/03*

U.S. Cl. Plt.—43 1 Claim

1. A new and distinct variety of peach tree substantially as illustrated and described; being particularly characterized by a vigorously growing, regularly and heavily bearing tree, with fruit that is firm and large, has a bright red skin color over 50% to 75% of its surface and a bright yellow undercolor, and ripening about two weeks after Rio Oso Gem (U.S. Plant Pat. No. 84); and most nearly resembling the Angelus (U.S. Plant Pat. No. 1,966), but being an improvement thereon in ripening about three weeks later.

3,414

ROSE PLANT

Reimer Kordes, Sparrieshoop, near Elmshorn, Germany, assignor to Jackson & Perkins Company, Medford, Oreg.

Filed Nov. 22, 1971, Ser. No. 201,217

Int. Cl. A01h *5/00*

U.S. Cl. Plt.—15 1 Claim

1. A new and distinct variety of rose plant of the hybrid tea class, substantially as herein shown and described, characterized particularly as to novelty by the combination of a very double, large flower of Lemon yellow, overlaid in early stages by Neyron rose and Nasturtium orange, borne on stiff, erect, thorny stems.

3,415

ROSE PLANT

Mathias Tantau, Schliebfach, Germany, assignor to Jackson & Perkins, Medford, Oreg.

Filed Nov. 12, 1971, Ser. No. 198,484

Int. Cl. A01h *5/00*

U.S. Cl. Plt.—15 1 Claim

1. A new and distinct variety of rose plant of the hybrid tea class, substantially as herein shown and described, characterized particularly as to novelty by the unique combination of a vigorous, upright but branching plant, leathery foliage, ovoid pointed bud of Buttercup Yellow (Wilson) fading very little as the flower opens and holding open form and color for several days on the plant.

3,416

CHRYSANTHEMUM PLANT

Walter H. Jessel, Jr., Doylestown, and William E. Duffett, Akron, Ohio, assignors to Yoder Brothers, Inc., Barberton, Ohio

Filed Oct. 22, 1971, Ser. No. 191,893

Int. Cl. A01h *5/00*

U.S. Cl. Plt.—74 1 Claim

1. A new and distinct cultivar of chrysanthemum characterized particularly as to its uniqueness when compared to the parent cultivar Illini Spinwheel by its light yellow flower color, its sharper, more uniform response, particularly in the early spring period of mid-March through April and the very late fall period from mid-November through December, and by its earlier response, ranging from one day in May through mid-November and up to three days earlier in the periods of mid-March through April and mid-November through December.

3,417

AZALEA PLANT

William J. Skou, Akron, Walter W. Knicely, Barberton, and William E. Duffett, Akron, Ohio, assignors to Henry W. Motzkau, Whitewater, Wis.

Filed Oct. 22, 1971, Ser. No. 191,766

Int. Cl. A01h *5/00*

U.S. Cl. Plt.—55 1 Claim

1. A new and distinct variety of azalea characterized particularly as to novelty when compared to the patent cultivar Skylark by its pink and white variegated flower color.

3,418

APPLE TREE

Herbert S. Mason, 1210 Gilmer Ave., Tallassee, Ala. 36078

Filed Oct. 15, 1971, Ser. No. 189,681

Int. Cl. A01h *5/03*

U.S. Cl. Plt.—34 1 Claim

An apple tree which was discvered as a bud mutation of the variety Golden Delicious Gilbert strain (Plant Pat. No. 202). In contrast with its parent, the fruit of the new variety has a brilliant yellow color, with non-russeting characteristics, which fruit matures approximately one and one-half weeks before Golden Delicious, Gilbert strain (Plant Pat. No. 202).

3,419

DICENTRA PLANT

Marion Ownbey, Pullman, Wash., assignor to The Wayside Gardens Company, Mentor, Ohio

Filed Aug. 23, 1971, Ser. No. 174,066

Int. Cl. A01h *5/00*

U.S. Cl. Plt.—68 1 Claim

1. The new and distinct variety of Dicentra plant herein shown and described.

3,420

APPLE TREE

Franklin Andrew Gilbert, 403 W. Pine St., Sturgeon Bay, Wis. 54235

Filed Sept. 20, 1971, Ser. No. 182,271

Int. Cl. A01h *5/03*

U.S. Cl. Plt.—34 1 Claim

1. A new and distinct variety of apple tree substantially as described and illustrated in the foregoing specification and drawing.

3,421

CHRYSANTHEMUM PLANT

Jack S. Sweet, St. Petersburg, Fla., and Walter H. Jessel, Jr., Doylestown, and William E. Duffett, Akron, Ohio, assignors to Earl J. Small Growers Inc., Pinellas Park, Fla.

Filed Jan. 17, 1972, Ser. No. 218,568
Int. Cl. A01h 5/00
U.S. Cl. Plt.—78 1 Claim

1. A new and distinct cultivar of chrysanthemum characterized particularly as to its uniqueness when compared to the parent cultivar Torch by its yellow flower color when bud development and finishing temperatures are above 65°–70° F., flowers which are approximately one-half inch smaller, approximately 1" shorter habit, and by its foliage which is approximately one-half inch shorter in length.

3,422

CARNATION PLANT

William Pomeroy Thomson, West Hartford, Conn., assignor to The W. W. Thomson Company, Inc., West Hartford, Conn.

Filed Jan. 24, 1972, Ser. No. 220,503
Int. Cl. A01h 5/00
U.S. Cl. Plt.—70 1 Claim

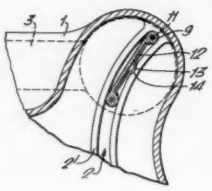
A new variety of carnation plant resulting from meristem propagation of the unpatented variety Barta, the new variety being a sport of Barta and being particularly distinguished from Barta by its larger and better formed flowers which have a more intense coloring, an almost complete absence of splitting, and a taller overall growth.

PATENTS

GRANTED JANUARY 1, 1974

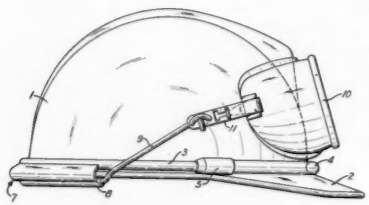
GENERAL AND MECHANICAL

3,781,914
SAFETY HELMET VISORS
Ian Ramsay, Welwyn Garden City, England, assignor to Stadium Limited, Middlesex, England
Filed Feb. 11, 1972, Ser. No. 225,450
Claims priority, application Great Britain, Feb. 15, 1971, 4,643/71
Int. Cl. A61f 9/04
U.S. Cl. 2—10 **6 Claims**



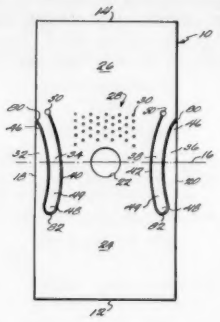
A safety helmet visor comprises a curved transparent faceshield having an arcuate slot formed therethrough at each end thereof. A capping member is fitted through each slot and internally of the faceshield is secured to the headband which is mountable on the helmet. Each capping member provides cam portions engageable with the slot so that the faceshield can be moved in an arc, and spring means act between the capping member and the slot to take up play and define positions at which the faceshield is held locked in place.

3,781,915
GOGGLE-SUPPORTING ASSEMBLY FOR HARD HATS
Robert F. Menold, Monroeville, and James J. Summers, Bethel Park, both of Pa., assignors to Mine Safety Appliances Company, Pittsburgh, Pa.
Filed June 29, 1972, Ser. No. 267,380
Int. Cl. A61f 9/02
U.S. Cl. 2—10 **3 Claims**



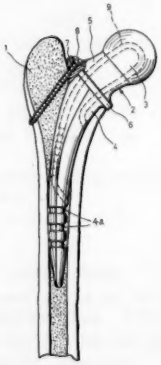
A loop member, adapted to encircle a hard hat directly above its outwardly flared lower edge, is joined to the upper flange of a longitudinally curved and laterally opening channel member for receiving the rear portion of the flared edge. The lower flange of the channel member is provided with a tubular edge, through which a cord extends for connection to goggles.

3,781,916
PROTECTIVE GARMENTS
Matt J. Vitol, 146 E. Court St., Woodstock, Va.
Filed Nov. 2, 1972, Ser. No. 303,019
Int. Cl. A41d 13/00
U.S. Cl. 2—88 **8 Claims**



There is disclosed a one-piece body cover having a neck opening and front and rear panels which overlap at the sides. Each panel side margin has a tie which secures with the tie on the opposite side margin of the same panel, one set tying across the wearer's back and the other across the wearer's front. The body cover is die cut, e.g., of thermoplastic film with lines designed to accommodate stress in use without tearing. An arm and shoulder cover and a head covering cowl are also shown.

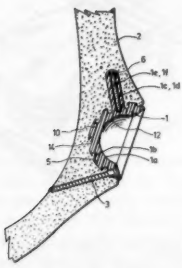
3,781,917
HIP JOINT PROSTHESIS
Robert Mathys, Guterstrasse 5, Bettlach, Switzerland
Filed Oct. 12, 1971, Ser. No. 187,964
Claims priority, application Switzerland, Oct. 13, 1970, 15079/70
Int. Cl. A61f 1/24
U.S. Cl. 3—1 **4 Claims**



A hip joint prosthesis of the type incorporating a ball head, a curved shaft intended to be inserted into the femur, and a

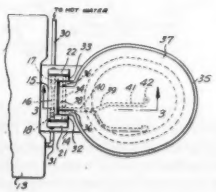
support collar located between the shaft and the ball head. A screw hole is provided at the side of the support collar located at the outside curvature of the curved shaft for the purpose of anchoring the prosthesis by means of a screw at the outer corticalis.

3,781,918
ARTIFICIAL JOINT SOCKET
Robert Mathys, Guterstrasse 5, Bettlach, Switzerland
Filed Oct. 30, 1972, Ser. No. 302,017
Claims priority, application Switzerland, Nov. 29, 1971, 017317/71
Int. Cl. A61f *1/24*
U.S. Cl. 3—1 **4 Claims**



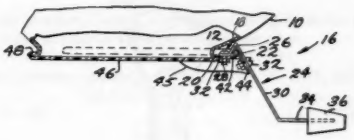
An artificial plastic joint socket comprising a plastic joint socket body having a segmented spherical-shaped outer surface equipped with recesses for growth therein of the bone. Two essentially parallel plugs protrude from the outer surface of the joint socket body and are elastically connected therewith in such a manner that such plugs can adjust themselves with regard to the segmented spherical-shaped joint socket body owing to the bending forces occurring during implantation into the bone.

3,781,919
BIDET ATTACHMENT
Justino Ramos Ayala, Ave. Hnos. Davila-F-3 Urb. San Fernando, Bayamon, P.R.
Filed Aug. 11, 1972, Ser. No. 279,762
Int. Cl. A47k *3/22, 11/08*
U.S. Cl. 4—7 **10 Claims**



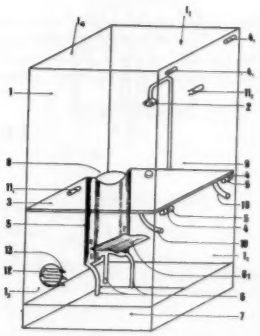
A seat and cover assembly for a toilet bowl having a built-in bidet. The bidet is carried on a fixture including a conduit having hot and cold water fittings attachable to the toilet bowl to secure the assembly thereto. The fittings have control valves with handles extending from the opposite ends of the fixture and contoured to be flush therewith in the closed position of the valves. The toilet seat and cover are pivoted on a shaft carried by a pair of forwardly extending lugs on the fixture.

3,781,920
WASTE DISCHARGE VALVE FOR TOILET BOWL
Ronald O. Browne, and James L. Huffman, both of Staunton, Va., assignors to Brown Engineering Corporation, Staunton, Va.
Filed June 21, 1972, Ser. No. 264,711
Int. Cl. E03d *11/10*
U.S. Cl. 4—85 **3 Claims**



An improved waste discharge valve having a simplified mounting arrangement that generally facilitates final assembly to the flush bowl of a portable toilet. The preferred embodiment of the unique valve mounting arrangement simultaneously serves as a pivot axis about which the valve is freely movable. The preferred embodiment of the invention also utilizes a valve flap construction that is slightly dish-shaped so as to trap a small amount of flushing fluid and thereby form a water seal which prevents the passage of noxious odors from a holding tank located below the flush bowl.

3,781,921
CABIN FOR SWEATING BY MEANS OF HEAT BATHS
Pierrette Dahem Rouat, Le Lichern, Quimperie, France
Filed Nov. 29, 1971, Ser. No. 202,883
Int. Cl. A61h *33/06*
U.S. Cl. 4—161 **5 Claims**



A sweating cabin for obtaining heat baths and the like, the cabin including screens, a movable wall, locking elements, means for selectively supporting the members.

3,781,922

SANITARY URINE COLLECTOR

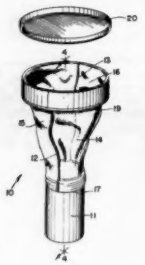
Richard E. Ericson, Keene, N.H., assignor to C. R. Bard, Inc., Murray Hill, N.J.

Continuation of Ser. No. 774,696, Nov. 12, 1968, Pat. No. 3,579,652. This application Feb. 26, 1971, Ser. No. 119,108

Claims priority, application Canada, July 2, 1970, 087042; Great Britain, July 3, 1970, 32373/70. The portion of the term of this patent subsequent to May 25, 1988, has been disclaimed.

Int. Cl. E03d *13/00*

U.S. Cl. 4—110 5 Claims



A funnel for use in the collection of urine specimens having a side wall of flexible material and two openings at either end and a rigid member coupled about one end to hold the opening in an open position and to provide a foundation for a sealing cap.

3,781,923

VENTILATING SYSTEM FOR A WATER CLOSET

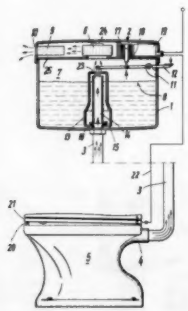
Hans Maisch, and Ernst Jung, both of Gaggenau-Rotenfels, Germany, assignors to Eisenwerke Gaggenau GmbH, Gaggenau/Baden, Germany

Filed July 27, 1971, Ser. No. 166,449

Claims priority, application Germany, July 30, 1970, P 20 37 830.7

Int. Cl. A47k *3/22*; E03d *9/04*, *13/00*

U.S. Cl. 4—213 6 Claims



A ventilating system for a water closet installation comprises a hollow cover member mounted on the flushing tank to replace the standard cover. Extractor fan means in the hollow cover draws foul air from the installation and passes it through a filter to ambient atmosphere. The hollow cover member may also include electrically controlled flush-actuating means.

3,781,924

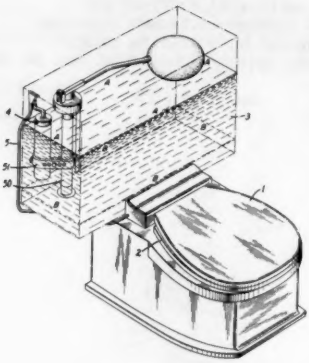
TOILET LID OR LID AND SEAT CLOSER

Charley W. Davis, Jr., 12 Wilmont Ave., White Plains, N.Y.

Filed Oct. 6, 1971, Ser. No. 187,059

Int. Cl. A47k *13/10*

U.S. Cl. 4—251 7 Claims



A toilet lid or lid and seat closer device for tank-type toilets comprises pneumatic means actuable upon flushing of the toilet for moving the raised toilet lid or lid and seat from a position behind the vertical to a position forward of the vertical and gravity restraining means for gradually lowering the toilet lid or lid and seat to the closed position.

3,781,925

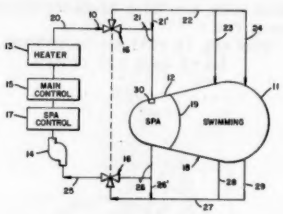
POOL WATER TEMPERATURE CONTROL

George C. Curtis, 7252 Moore Rd. South, Salem, Oreg., and James S. Spight, 3306 Freeman Rd., Walnut Creek, Calif.

Filed Nov. 26, 1971, Ser. No. 202,221

Int. Cl. E04h *3/16*, *3/18*

U.S. Cl. 4—172.15 4 Claims

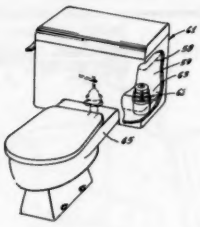


A dual temperature control system to regulate separately the water temperature in a swimming pool and in an adjacent therapeutic pool with the use of a single heater and circulating pump. Valve means in one position direct substantially all circulating water to the swimming pool at low back pressure and in a second position direct substantially all water flow to the therapeutic pool at a higher back pressure. A spa temperature control which is responsive to the higher back pressure or is electrically actuated in concurrence with the valve means, overrides the main heater thermostatic control and regulates the temperature of water flowing to the therapeutic pool at a level higher than that normally supplied to the swimming pool.

3,781,926
ADJUSTABLE SANITIZER DISPENSER FOR TOILET TANK

John Levey, Westlake Village, Calif., assignor to Sandra Levey, Los Angeles and Robert Levey, Encino, Calif., part interest to each

Filed Mar. 27, 1972, Ser. No. 238,111
Int. Cl. E03d *9/02*
U.S. Cl. 4—228 **6 Claims**

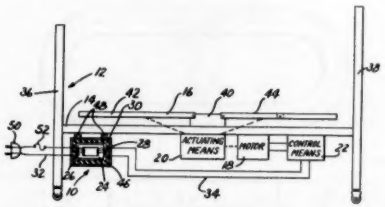


In a cylindrical type dispenser of a sanitizer material in the form of a solid cake disposed in the lower portion of the dispenser cylinder for use in a toilet flush tank, where water from a toilet tank is admitted through one or more openings in a cap placed on top of the cylinder to reach the top of the cake and dispensation of the sanitizing solution takes place with each flushing of the toilet as the water level in the tank drops below the openings in the cap, a double-walled cap is provided. One of the two walls of the cap is rotatable relative to the other, and each of the walls is provided with tiers of one or more openings which upon rotation of the rotatable wall to predetermined points are placed in register with one or more openings in the other wall. Means are provided to enable the rotatable wall to be manually rotated from above the cap to any predetermined position. Thereby, the user may determine the volume of water which will be admitted to the top of the cake to become saturated with sanitizer material and which, upon flushing of the toilet, will pass out from the cap into the toilet tank and bowl.

3,781,927
MOTOR OPERATED BED HAVING LOW LEAKAGE CURRENT

Anthony E. Zakaras, Palos Park, Ill., assignor to Simmons Company, New York, N.Y.

Filed Aug. 9, 1972, Ser. No. 279,095
Int. Cl. A61g *7/10*; **H02h** *9/00*; **A61n** *1/36*
U.S. Cl. 5—67 **10 Claims**

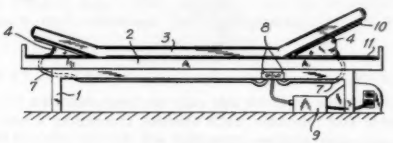


A motor operated adjustable hospital bed having a mattress supporting frame pivotally mounted on a lower supporting frame. The mattress supporting frame is pivoted with respect to the lower supporting frame by an actuating means which is driven by an electric motor mounted on the lower supporting frame. An on/off electrical control controls the electrical power supplied to the motor. A power supply means supplies power to the electrical control which power supply means includes a transformer having isolated primary and secondary insulated windings, the electrostatic coupling between the primary and secondary windings being less than 241 picofarads. Supplementary electrical insulation is disposed on the transformer and the electrically insulated transformer is mounted on the lower supporting frame. The primary winding of the transformer is connected to a source of alternating current power and the secondary winding is connected to the electrical control.

3,781,928
DEVICE FOR RAISING THE HEAD END AND/OR FOOT END OF A BED

Sven Arild Swallert, Geneva, Switzerland, assignor to Per-Erik Pettersson, Branninze Gard, Sadertalje, Sweden

Filed Apr. 5, 1971, Ser. No. 241,211
Claims priority, application Sweden, Apr. 6, 1971, 4454/71
Int. Cl. A61g *7/10, 7/06*
U.S. Cl. 5—68 **5 Claims**

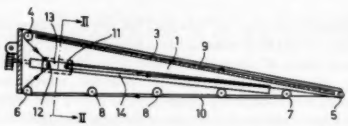


A device for raising an lowering the head end and/or foot end of a mattress of a bed from a bedstead comprising an inflatable pad positioned at the head end and/or foot end of the bedstead between the bedstead and the mattress to raise or lower the associated end of the mattress. The pad is mounted in a frame which is composed of upper and lower hinged U-shaped parts each of which includes a plate of thin rigid material fixedly attached to the parallel legs of the associated frame part. The pad is attached only to the plate of the bottom part and is free to slide on the plate of the upper part when the mattress is raised and lowered in the course of inflation and deflation of the pad.

3,781,929
STRETCHER

Simon Stevens, Den Helder, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y.

Filed June 22, 1971, Ser. No. 155,584
Claims priority, application Netherlands, July 11, 1970, 7010299
Int. Cl. A61g *1/02*
U.S. Cl. 5—81 R **3 Claims**



A stretcher comprising a frame having at least two parallel upper guides incorporated in said frame on the front and rear sides, respectively, for guiding a belt portion which is capable of supporting a human body, and at least two lower guides

likewise incorporated in the frame on the front and rear sides, respectively, for guiding a belt portion which is in contact with the ground. Both ends of the belt portion guided over the upper guides are coupled to a coupling member incorporated in the frame so as to be movable in the direction of movement of the stretcher. The two ends of the belt portion guided over the lower guides are also coupled to said movable member.

3,781,930

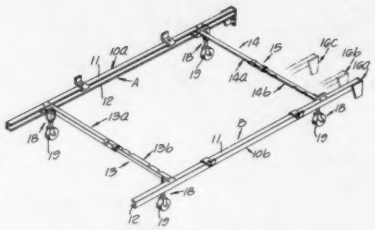
CONNECTING DEVICE FOR ADJUSTABLE BEDFRAME

Melvin P. Spitz, 619 N. Elm Dr., Beverly Hills, Calif.

Filed Apr. 24, 1972, Ser. No. 246,695

Int. Cl. A47c *19/02*

U.S. Cl. 5—201 **5 Claims**



A bedframe in which side rails are interconnected by adjustable end crossbars, each crossbar comprising a pair of elongate angle sections connected with the side rails and having nested overlapped adjacent end portions manually interconnectible at a plurality of selectable positions to provide a plurality of different standard bed widths, the connecting means comprising permanently affixed pin and spring clip members which are manually operable without the necessity of using supplemental tools.

3,781,931

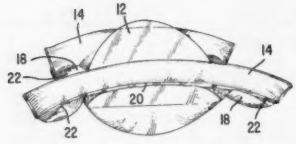
INFLATABLE THERAPEUTIC DEVICE

Barbara Knickerbocker, 240 Cold Soil Rd., Princeton, N.J.

Filed Feb. 17, 1972, Ser. No. 227,217

Int. Cl. A47c *7/08*

U.S. Cl. 5—337 **8 Claims**



Inflatable devices are adapted for use in therapeutic activity, and for physical exercise or amusement purposes comprising one layer of opaque, nonreflective material, and another layer of transparent, flexible material which preferably presents a non-slippery surface. The layers are sealed about their edges and the devices are inflated with a fluid in the form of a gas and/or a liquid to support a person in an elevated position, and/or to stabilize and aid in the balancing of the individual. The devices may embody a plurality of cells or compartments and means may be located adjacent the edge or on the surface of the device to be engaged by the person as an aid in positioning or repositioning himself on the yieldable surface of the device.

3,781,932

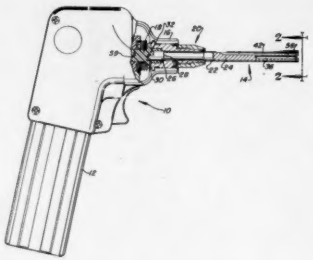
CUTTING, STRIPPING, AND WRAPPING BIT FOR INSULATED CONDUCTOR WIRE

William J. Baker; Clifford L. Galloup, both of Reed City, and John R. Bos, Grand Haven, all of Mich., assignors to Gardner-Denver Company, Quincy, Ill.

Filed Dec. 16, 1971, Ser. No. 208,791

Int. Cl. B21f *15/00*

U.S. Cl. 7—14.1 R **6 Claims**



A bit and sleeve assembly for cutting, stripping and wrapping an insulated conductor comprising a rotary wrapping bit mounted within a fixed tubular sleeve. The bit includes a longitudinal conductor receiving groove having disposed therein a transverse cutting edge or blade insert cooperable with the sleeve to cut the conductor insulation upon commencement of the wrapping operation. The sleeve includes a radially extended wall portion forming an opening to the bit end face which is alignable with the conductor receiving groove to facilitate loading an insulated conductor into the groove. An opening in the sleeve alignable with the conductor receiving groove defines a cutting edge cooperable with the bit to cut a predetermined length of wire to be wrapped.

3,781,933

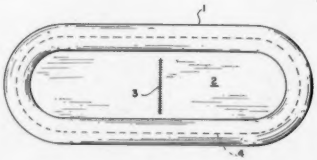
MODIFICATION OF ONE MAN LIFE RAFT

Ernest J. Soter, Newport News, Va., assignor to The United States of America as represented by the Administration of the National Aeronautics and Space Administration, Washington, D.C.

Filed Oct. 29, 1971, Ser. No. 193,672

Int. Cl. B63c *9/04*

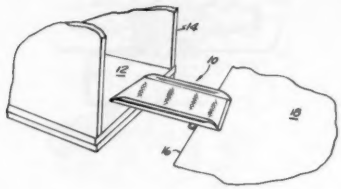
U.S. Cl. 9—11 A **7 Claims**



A life raft, preferably of the one-man inflatable type wherein an inflatable tube perimetrically bounds an occupant receiving space having a flexible floor member, includes a zippered opening in the floor to be used for entry, thus avoiding the necessity of climbing over the peripheral tube, and facilitating the use of a constant diameter tube as opposed to conventional tubes tapered at one end to facilitate boarding

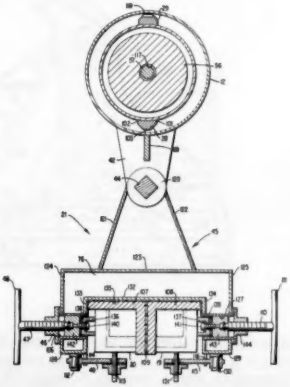
over the side. An airtight fabric bulkhead divides the peripheral tube longitudinally into two inflatable tube sections, whereby if either tube section were punctured, the bulkhead would move into the punctured section to substitute for the punctured wall portion and maintain the inflatable volume of the tube. The floor member is preferably attached to the central portion of the tube wall so that either side of the raft can be the "up" side.

3,781,934
DOCKBOARD
David A. Pink, Cadillac, Mich., assignor to Brooks & Perkins, Incorporated, Southfield, Mich.
Filed Sept. 22, 1972, Ser. No. 291,229
Int. Cl. E01d *15/12*
U.S. Cl. 14—72 **10 Claims**



A dockboard having a combined stop bracket and handle attached to the underside thereof, said bracket being of L-shape and having one leg attached to the dockboard, the handle being generally U-shaped and having the free ends of its legs attached, preferably by continuous welding, to the leg of the bracket which is attached to the dockboard.

3,781,935
METHOD OF OPERATION OF A CONVERTIBLE ESR FURNACE INSTALLATION
Boris Izrailevich Medovar, Bulvar Lesi Ukrainki, 2, kv. 8; Vikitor Andreevich Popov, ulitsa Andreevskaya, 11, apt. 2; Jury Fedorovich Alferov, Bulvar Lepse, 29, kv. 64; Alexey Georgievich Bogachenko, ulitsa Milyutenko, 15/2, apt. 141, and Jury Vadimovich Latash, Vozdukhoflotsky prosp. 81/2, kv. 14, all of Kiev, U.S.S.R.
Division of Ser. No. 100,709, Dec. 20, 1970, Pat. No. 3,709,997. This application Oct. 27, 1972, Ser. No. 301,502
Int. Cl. H05b *3/60, 7/12*
U.S. Cl. 13—34 **9 Claims**

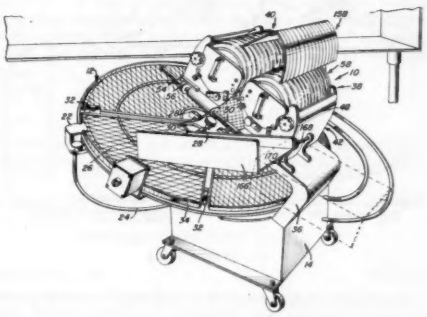


An electric furnace installation and process of operation in which a simple interchangeability of electrode clamping assemblies is provided to permit electrode melting operation in which single or plural electrodes can be mounted on the basic furnace tower for melting in a crucible means. The interchangeable electrode clamping assemblies are designed for ease of rapid removal from and rapid connection onto an upper carriage of the basic furnace. A lower carriage which helps support and stabilize the crucible can accommodate crucibles for single and for plural electrode melting.

ERRATUM

For Class 14—72 see:
Patent No. 3,781,934

3,781,936
MEAT HANDLING EQUIPMENT
Herman F. Russell, Detroit, Mich., assignor to Hobart Manufacturing Company, Troy, Ohio
Continuation-in-part of Ser. No. 877,229, Nov. 17, 1969, Pat. No. 3,606,628, which is a continuation-in-part of Ser. No. 734,729, June 5, 1968, Pat. No. 3,478,380, which is a continuation-in-part of Ser. No. 583,206, Sept. 30, 1966, Pat. No. 3,389,414, and a continuation-in-part of Ser. No. 704,971, Jan. 15, 1968, Pat. No. 3,439,369, which is a continuation-in-part of Ser. Nos. 583,206, Aug. 5, 1966, abandoned, and Ser. No. 570,616, Aug. 9, 1967, abandoned, and Ser. No. 659,937, Aug. 9, 1967, abandoned. This application Sept. 2, 1971, Ser. No. 177,302
Int. Cl. A22c *17/08*
U.S. Cl. 15—3.17 **14 Claims**

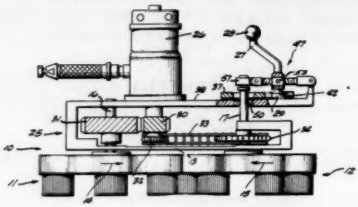


A meat cleaning machine mounted over a circularly traveling meat receiving unit which moves the cleaned meat outward of the cleaning machine incorporates a pair of laterally adjustable sections each incorporating a wire-like rotating gripping roller which engage and move cuts of meat therebetween. A brush is associated with each roller for cooperation therewith in effecting a cleaning of the moved meat. Each roller is defined by a series of simultaneously driven toothed rings mounted on and traveling about arcuate spaced shields or supports.

3,781,937
VARIABLE CAMBER CLEANER
Harold J. Jacobs, 1047 First St., San Pedro, Calif.
Filed June 14, 1971, Ser. No. 152,638
Int. Cl. A47l *11/16*
U.S. Cl. 15—49 R **11 Claims**

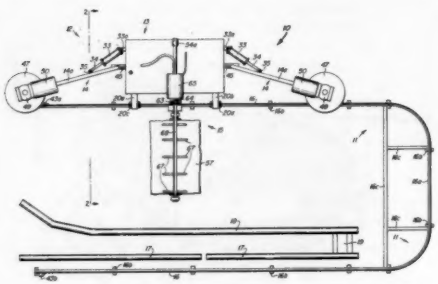
Two brushes are mounted on the cleaner for rotation on axes and have cleaning faces substantially normal to the axes and substantially lying in the same plane. The brushes are counter rotatively driven, and the cleaning faces of the

brushes are the only substantial contact between the cleaner and the surface being cleaned. The axes are tiltable with respect to each other so that different portions of the brush



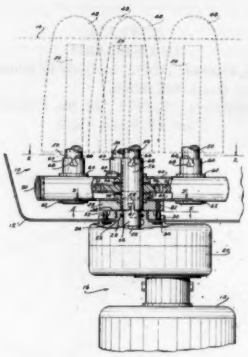
face periphery are in greater contact with the surface being cleaned so that the cleaner is urged along the surface, in accordance with the relative tilt of the axes.

3,781,938
CAR WASH
Willis R. Dunkley, 2804 Pierce Ave., Ogden, Utah
Filed Mar. 29, 1972, Ser. No. 239,237
Int. Cl. B60s *3/06*
U.S. Cl. 15—21 E **9 Claims**



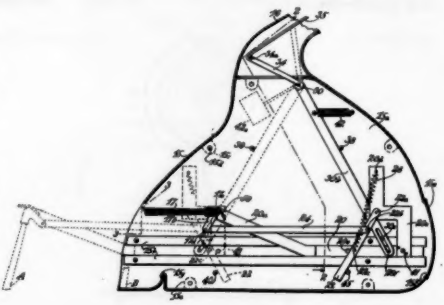
A car wash wherein a vehicle is subjected to an arrangement of rotating brushes that efficiently scour the vehicle sides, ends and top while soap and water rinse sprays are being alternately directed thereover. The car wash incorporates a movable console arranged to travel about the vehicle on a track within which the vehicle is positioned. Maintained within the movable console are the support apparatus such as soap dispensing and water spray pumps, hydraulic and electrical motors, and associated lines and valves as well as timing mechanisms for controlling the operations within the car wash. Arms are pivotally connected to the sides of the movable console that mount upstanding rotatable brushes suitable for washing. The sides and ends are mounted on the free ends of the arms. Motors rotate the brushes and the brushes are resiliently maintained in contact with the vehicle as the movable console travels around the vehicle. The movable console operates the brushes to provide alternate pushing of one upstanding brush over crevices and bends in the vehicles contoured surfaces and a dragging of the other rotating brush over the surfaces. A cantilever arm is mounted to the top of the console and another motor driven rotating brush journaled thereby is arranged to wipe the top and hood and rear deck areas of the vehicle. Soap and water sprays and clear water rinse sprays are also dispensed onto the vehicles top and hood areas from a spray arrangement carried by the cantilever arm.

3,781,939
GLASS WASHER FOR BEVERAGE GLASSES AND THE LIKE
Harold J. Qualheim, 641 Tower Cir., Racine, Wis.
Filed Aug. 17, 1972, Ser. No. 281,422
Int. Cl. A47l *15/38*; **B67c** *1/08*
U.S. Cl. 15—76 **5 Claims**



A glass washer for use in washing beverage glasses and the like, comprising a washer unit having multiple rotating brushes, and mounted in a sink, and submerged in the washing solution. The means of rotating the brushes comprises a drive unit positioned under the sink, which unit has a shaft extending upwardly therethrough to engage the washer unit. The washer unit is portable to permit convenient removal from the sink for cleaning and servicing. Downwardly extending means on the washer unit engages corresponding fixed means to prevent rotation of the body of the washer unit when in operation.

3,781,940
HAND-OPERATED SWEEPERS
Solomon J. Lehrer, 77 W. Washington St., Chicago, Ill.
Filed Mar. 15, 1972, Ser. No. 234,818
Int. Cl. A46b *13/08*; **A47l** *13/52*
U.S. Cl. 15—104.8 **9 Claims**



A sweeper for litter dropped on floors and carpets which has a broom in a bottom housing. A push rod rises from the latter to terminate with a handle. A trigger in the handle operates by way of slides in the housing to advance the broom from a raised position in the housing to a sweeping position

spaced forwardly from the same; and the broom takes a rearward sweeping movement when the trigger is released. A spring mechanism in the housing is automatically actuated to hold the broom in the raised position on the advance of the slides and in the sweeping position on the return thereof.

3,781,941

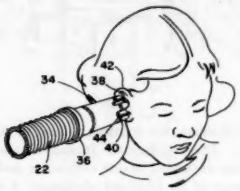
VACUUM INTAKE SAFETY MEANS

Charles H. MacFarland, Cleveland, Ohio, assignor to The Scott & Fetzer Company, Cleveland, Ohio

Continuation-in-part of Ser. No. 35,490, May 7, 1970, abandoned. This application Jan. 21, 1972, Ser. No. 219,688

Int. Cl. A47l *9/24*

U.S. Cl. 15—339 **5 Claims**



A coupling is provided for a vacuum cleaner including a male connector member adapted for sliding fit with an associated female connector member. One of the connector members is integrally connected to the vacuum intake tube or hose adjacent the intake end thereof and forms a vacuum intake mouth having a notched or apertured configuration adapted to prevent sealing engagement when the intake mouth is pressed against portions of the human body while the vacuum cleaner is running. The connector members are designed to interfit and form a fluid-tight seal, closing off the notched or apertured configuration, and transmitting the suction effect of the vacuum cleaner.

3,781,942

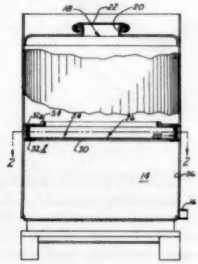
FOLLOWER FOR MATERIAL CONTAINERS

Clarence B. Coleman, Oakland, Calif., assignor to Fabricated Metals, Inc., San Leandro, Calif.

Filed June 14, 1971, Ser. No. 152,721

Int. Cl. B67d *5/64*

U.S. Cl. 15—246.5 **9 Claims**



A flexible follower assembly for use in withdrawing viscous material from bulk containers consisting of a flexible diaphragm coextensive with the transverse cross-section of the container and including annular members attached to the diaphragm sheet for wiping up against the inside walls of the container. The flexible diaphragm and wiping rings are maintained in position within the container by a relatively stiff circumferential frame. The entire follower assembly, wiper and diaphragm and frame, are disassemblable so as to be insertable through the normal access opening of such a container, for assembly therewithin.

3,781,943

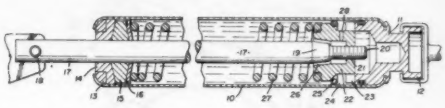
HYDRAULIC DOOR CLOSER

James P. Cain, Youngstown, Ohio, assignor to Marlboro Manufacturing Inc., Alliance, Ohio

Filed June 23, 1972, Ser. No. 265,515

Int. Cl. E05f *3/10*

U.S. Cl. 16—52 **1 Claim**



A hydraulic cylinder has a piston movable therein on a piston road threadably engaged in said piston. The rod extends out of the cylinder through a gland at one end and a spring is positioned between that end of the cylinder and the piston and normally urges the piston toward the other end of the cylinder which is closed. Valve means in the piston control the flow of fluid in the cylinder from either side of the piston and permit a rapid flow of fluid in one direction and a controlled flow of fluid when the piston is moved in the other direction. Rotation of the cylinder or the piston rod adjusts the controlled valving action and thereby the rate of closing action of the door closer.

3,781,944

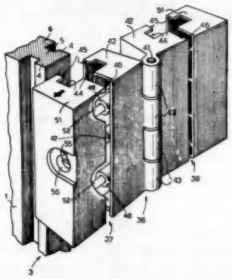
HINGE FOR THE ARTICULATED CONNECTION OF PARTITIONING PANELS, FURNITURE AND THE LIKE FOR OFFICES

Agostino Gianardi, Arcola, Italy, assignor to Ing. C. Olivetti & C., S. p.A., Torino, Italy

Filed Sept. 12, 1972, Ser. No. 290,920

Int. Cl. E05f *1/20*

U.S. Cl. 16—187 **7 Claims**



A hinge for the articulated connection of first and second releasably held members comprises first and second hinge elements pivotally inter-connected by means of a first block of each element mutually hinged. A second block of each element is connected to the first block by a screw operable to adjust the spacing between opposed pairs of slots and projections to clamp the connecting edge of each member between the

first and second blocks. The first and second blocks are resiliently biased away from each other by a spring. The screw extends through a hole in the second block and is engaged in a threaded hole in the first block, whereas the head of the screw provides has a radially projecting lug to prevent the first and second blocks moving further than predetermined distances.

3,781,945

POULTRY PROCESSING MACHINE AND METHOD

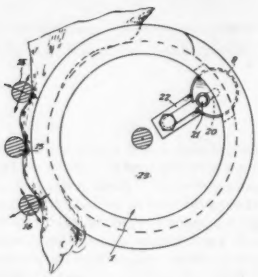
John Taylor, Gloucester, England, assignor to Gordon-Johnson-Stephens Limited, Gloucester, England

Filed Oct. 28, 1971, Ser. No. 193,311

Claims priority, application Great Britain, Nov. 9, 1970, 53,214/70

Int. Cl. A22b *3/08*

U.S. Cl. 17—11 **7 Claims**



A machine and method for processing birds uses a screw to convey one extremity of the birds to or in work stations, the other extremity being conveyed conventionally.

To facilitate a later crop-extracting operation, the screw may be provided with a knife and receive the necks of the birds so that the knife cuts a slit in the skin of the neck. A preferred form of screw is a conical screw and means for pressing the extremity into the screw may be rotatable rods lying generally parallel to its surface.

3,781,946

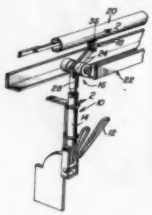
POULTRY SHACKLE SUSPENSION

William F. Altenpohl, Union Hill Rd., West Conshohocken, Pa.

Filed Apr. 21, 1972, Ser. No. 246,409

Int. Cl. A22b *5/08*

U.S. Cl. 17—44.1 **10 Claims**



A poultry shackle body suspended from an overhead conveyor or a track spaced therebelow by a single axis suspension assembly which includes a pair of rollers pulled along the track by a clevis element pivotally connecting the conveyor to a shaft on which the rollers are mounted. The shaft is non-rotatably fixed to a link member straddled by the yoke. The shackle body is pivotally suspended from the link member.

3,781,947

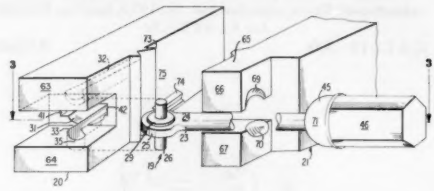
COUPLING APPARATUS FOR CONTAINERS

John A. Germer, New Galena Rd., R.D. No. 1, Doylestown, Pa.

Filed Feb. 9, 1972, Ser. No. 224,864

Int. Cl. A44b *21/00*

U.S. Cl. 24—81 E **2 Claims**



Coupling mechanism for joining a pair of adjacent containers together. The mechanism includes a pair of corner fittings, one being mounted in one container and the other in an opposite corner of an adjacent container. A threaded element having a spherical end is retractable from the interior of one corner fitting to engage a keeper element on the other corner fitting. The opposed corner fittings include complemental key portions for precision alignment and, are effective to transmit vertical and lateral forces between the containers when fastened together.

3,781,948

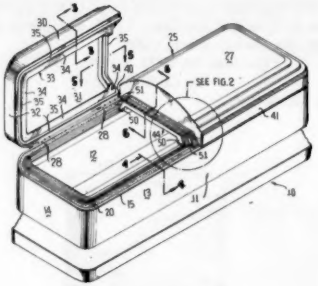
SPLIT LID CASKET

William V. Pitt, Waco, Tex., assignor to The Merit Company, Chicago, Ill., a part interest

Filed Nov. 1, 1971, Ser. No. 194,319

Int. Cl. A61g *17/00*

U.S. Cl. 27—17 **2 Claims**



This disclosure relates to a split lid casket in which a pair of lid sections include depending tongues for reception in an upwardly facing groove adapted to receive sealing compound in an uppermost peripheral edge of the casket, the upper peripheral edge also including gasket means for seating against sealing surfaces of the lid sections with the gasket means being inboard of the grooves and tongues, the lid sections having adjacent transverse edge portions of a stepped configuration, and one transverse edge portion having a groove and an additional gasket means for respectively receiving a tongue and seating against a sealing surface of the other transverse edge portion.

3,781,949

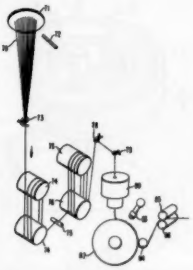
PROCESS AND APPARATUS FOR JET-TEXTURING YARN AT HIGH SPEED

Alvin L. Breen, and Herbert G. Lauterbach, both of Wilmington, Del., assignors to E. I. du Pont de Nemours and Company, Wilmington, Del.

Division of Ser. No. 721,403, April 15, 1968, which is a continuation-in-part of Ser. Nos. 43,897, July 19, 1960, abandoned, and Ser. No. 698,103, Nov. 22, 1957, abandoned. This application May 3, 1972, Ser. No. 249,763

Int. Cl. D02g *1/16*

U.S. Cl. 28—1.4 9 Claims



Process and apparatus are disclosed for jet-texturing yarn of continuous filaments at high speed to increase the bulk. Thermoplastic filaments are crimped by forwarding the yarn in a jetted stream of hot compressible fluid, such as heated air or steam onto a moving screen, cooling the yarn to set the crimp prior to imposing any substantial tension on the filaments and taking up the crimped yarn from the moving screen at a take-off roll to fix the take-off position.

3,781,950

APPARATUS FOR THE SCOURING OF WET-SPUN FILAMENT BUNDLES

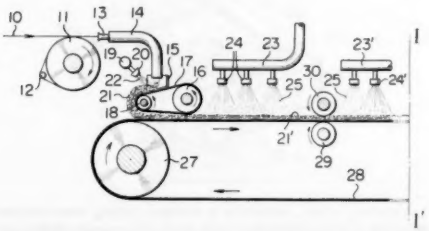
Shigeo Katsuyama; Atsumi Asami; Masahide Watanabe; Tsutomu Sato; Toshiaki Norimatsu, and Eizo Nakajma, all of Miyazaki-ken, Japan, assignors to Asahi Kasei Kogyo Kabushiki Kaisha, Osaka, Japan

Division of Ser. No. 881,345, Dec. 2, 1969, Pat. No. 3,672,819. This application Feb. 25, 1972, Ser. No. 229,384

Claims priority, application Japan, Dec. 3, 1968, 43/88229; Feb. 13, 1969, 44/10212

Int. Cl. B08b *3/00*

U.S. Cl. 28—1 SM 3 Claims



A process for the scouring treatment of wet-spun continuous multifilament bundles wherein said bundles are arranged in a plurality of elongated and parallel fleece mat strips on a pervious endless belt, each of said strips having a thickness of at least 5mm and 100–1,000 crossings of multifilament bundles.

3,781,951

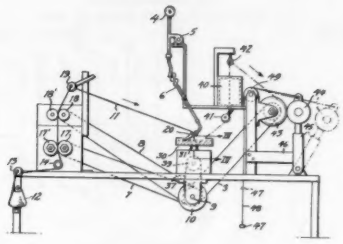
METHOD AND APPARATUS FOR COMPRESSIVELY CRIMPING TEXTILE STRANDS

Robert K. Stanley, Media, Pa., assignor to Textured Yarn Co., Inc., Kennett Square, Pa.

Filed Aug. 30, 1971, Ser. No. 176,029

Int. Cl. D02g *1/12*

U.S. Cl. 28—1.6 16 Claims



Textile strands are compressively crimped by propelling them lengthwise, as by a fluid jet, into buckling contact with a smooth solid surface. The crimped strand accumulates on an adjacent moving screen, which preferably has a cylindrical strand-supporting surface. Rotation of the screen aids in collection and retention of the crimped strand until it is withdrawn therefrom at the leading edge of the strand accumulation after about half a revolution.

3,781,952

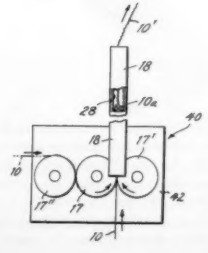
TEXTILE TREATMENT METHOD AND APPARATUS

Robert K. Stanley, 620 Meadowvale Ln., Media, Pa.

Continuation-in-part of Ser. Nos. 717,882, April 1, 1968, Pat. No. 3,500,519, and Ser. No. 680,851, Nov. 6, 1967, Pat. No. 3,518,733, and Ser. No. 684,230, Nov. 20, 1967, and Ser. No. 678,428, Oct. 26, 1967, and Ser. No. 606,420, Dec. 30, 1966, and Ser. No. 835,883, June 9, 1969, said Ser. No. 684,230, and Ser. No. 678,420, each is a continuation-in-part of Ser. No. 302,758, July 31, 1963, Pat. No. 3,376,622, which is a continuation of Ser. No. 216,524, Aug. 13, 1962, abandoned, said Ser. No. 717,882, is a continuation-in-part of Ser. No. 600,986, Dec. 12, 1966, abandoned, said Ser. No. 606,420, is a continuation-in-part of Ser. No. 386,489, July 31, 1964, Pat. No. 3,317,977, which is a continuation of Ser. No. 216,447, Aug. 13, 1962, Pat. No. 3,145,947, said Ser. No. 835,883, is a continuation-in-part of Ser. No. 650,762, July 3, 1967, abandoned, which is a continuation of Ser. No. 349,338, March 4, 1964, Pat. No. 3,348,283. This application July 31, 1969, Ser. No. 846,457

Int. Cl. D02g *1/12*

U.S. Cl. 28—1.6 8 Claims



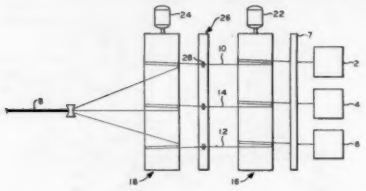
Textile yarns or strands are heated, as by contact with hot rolls, and if undrawn are also drawn by roll contact, and then are compressively crimped.

3,781,953

YARN PROCESSING APPARATUS

Albert F. Stegelman, Greenville, S.C., assignor to Phillips Petroleum Company, Bartlesville, Okla.

Filed Apr. 26, 1972, Ser. No. 247,523
Int. Cl. D02j 1/22
U.S. Cl. 28—71.3 3 Claims



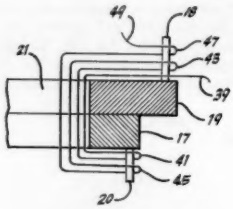
In an improved apparatus and method for simultaneously drawing a plurality of spaced-apart yarns and thereafter combining said yarns along their length to form a yarn bundle, at least one yarn guide having at least two yarn contacting elements is positioned between adjacent roll sets in the pathway of the yarn being drawn between the roll sets for maintaining each of said yarns between the roll sets at spaced-apart preselected relative locations.

3,781,954

THREE-DIMENSIONAL STITCHERY ORNAMENTS, APPARATUS AND METHODS FOR MAKING SAME

Alice Stewart, 32761 Seven Seas Dr., Laguna Niguel, Calif.

Filed Dec. 17, 1971, Ser. No. 209,058
Int. Cl. D03d 27/00
U.S. Cl. 28—15 11 Claims



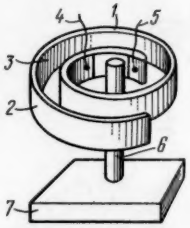
Three-dimensional stitchery creations are formed according to predetermined stitchery methods on apparatus compromising a base member having dimensions of height, width and length according to the three-dimensions of the stitchery creations formed thereon. The base member has a plurality of surfaces over which are distributed a multiplicity of projections about which stitchery materials may be looped and woven on a given surface and from one surface to another according to the predetermined stitchery methods forming the three-dimensional stitchery creation.

3,781,955

METHOD OF MAKING A PIEZOELECTRIC ELEMENT

Vyacheslav Vasilievich Lavrinenko, ulitsa Klovskaya, 12/7 kv. 61; Anatoly Petrovich Miroshnichenko, ulitsa Rozy Ljuxemburg 15, kv. 23, and Vitaly Alexeevich Khraschevsky, ulitsa Scherbakova, 57v, kv. 15, all of Kiev, U.S.S.R.

Filed Dec. 15, 1971, Ser. No. 208,306
Claims priority, application U.S.S.R., May 24, 1971, 1611885; Dec. 21, 1970, 1658506; Jan. 18, 1971, 1658786; Jan. 25, 1971, 1608697; May 31, 1971, 1600106
Int. Cl. B01j 17/00; H04r 17/00
U.S. Cl. 29—25.35 5 Claims



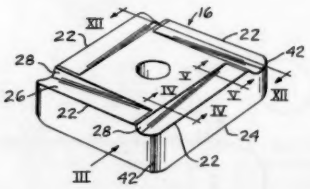
The present invention relates to the instrument manufacturing industry and, more particularly, the invention relates to piezoelectric elements made in the form of a spiral, to the method of their making and to apparatus that make use of said elements, for example piezoelectric relays, piezoelectric trigger devices, a clock with a piezoelectric drive, piezoelectric step-by-step motors, measuring instruments with a piezoelectric element, piezoelectric transfilters, piezoelectric bells and piezoelectric dynamic loudspeakers. The double-layer spiral piezoelectric element includes a piezoceramic material (1), electrodes on the outer surface (2) and the inner surface (3) of the spiral, terminals (4) and (5), a support (6) for mounting the piezoelectric element, a massive base (7), an electrode (8) between the two layers of the piezoelectric material and an electrode (9).

3,781,956

CUTTING INSERT

Dennis G. Jones, Greensburg, and James F. McCreery, Latrobe, both of Pa., assignors to Kennametal Inc., Latrobe, Pa.

Filed Feb. 23, 1972, Ser. No. 228,605
Int. Cl. B26d 1/00
U.S. Cl. 29—95 R 11 Claims



A cutting insert, especially a molded cutting insert formed of a hard wear resistant material, such as a is super-chilled carbide. The insert comprises a body having parallel top and bottom faces and a peripheral wall and is polygonal when viewed perpendicular to the faces. Cutting edges are formed at the juncture of at least one of the faces and the peripheral wall and a recess is formed in the one face extending inwardly A

heat the center and each recess is in the form of a skewed or helical plane to impart a shearing type cutting action to the insert when it is presented to a workpiece.

3,781,957

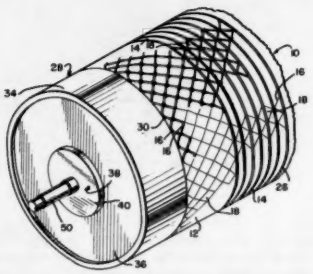
DRUM INCLUDING ANNULAR GRID STRUCTURE

Oscar Luthi, Nashua, N.H., assignor to Improved Machinery Inc., Nashua, N.H.

Filed Sept. 15, 1972, Ser. No. 289,663

Int. Cl. B21b *27/02*

U.S. Cl. 29—121 R **22 Claims**



A drum comprising an annular grid structure which includes end portions formed only from coils of waved strip material and an intermediate portion formed from alternate coils of waved and planar strip material. The head plates at the ends of the drum have stiffening spokes or ribs connected thereto in a manner accommodating differential expansion and contraction of the head plates and spokes generally radially of the grid structure.

3,781,958

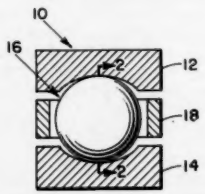
METHOD OF MAKING ROLLING ELEMENT BEARINGS

Richard J. Parker, North Olmsted, Ohio, assignor to The United States of America as represented by the Administrator of the National Aeronautics and Space Administration, Washington, D.C.

Division of Ser. No. 201,904, Nov. 24, 1971. This application Aug. 14, 1972, Ser. No. 280,390

Int. Cl. B23p *11/00*; **B21h** *1/14*

U.S. Cl. 29—148.4 A **8 Claims**



Making rolling elements by forming low mass cores having either hollow centers or being of a low mass material. The low mass cores are plated and heat treated to provide hard surfaces on the rolling elements. After grinding to the proper diameter the rolling elements are assembled between races to form a bearing.

3,781,959

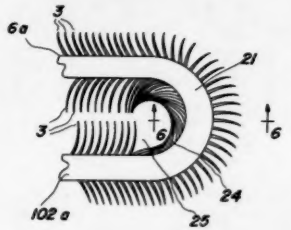
METHOD OF FABRICATING A FINNED HEAT EXCHANGER TUBE

Joseph M. O'Connor, Chicago, Ill., assignor to Peerless of America, Incorporated, Chicago, Ill.

Division of Ser. No. 68,910, Sept. 2, 1970, Pat. No. 3,692,105, which is a continuation-in-part of Ser. No. 34,715, May 5, 1970. This application Apr. 24, 1972, Ser. No. 247,109The portion of the term of this patent subsequent to Sept. 19, 1989, has been disclaimed.

Int. Cl. B21d *53/02*; **B23p** *15/26*

U.S. Cl. 29—157.3 B **3 Claims**



A heat exchanger embodying an elongated tubular member with integral elongated fins extending transversely thereacross and projecting outwardly therefrom, the fins terminating at their outer longitudinal edges in spaced spines.

3,781,960

METHOD OF MANUFACTURING A TUBE AND TIN RADIATOR

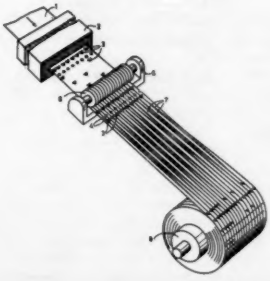
Willem Van Der Hoek, Emmasingel, Eindhoven, Netherlands, assignor to U. S. Philips Corporation, New York, N.Y.

Filed Apr. 3, 1972, Ser. No. 240,589

Claims priority, application Netherlands, Feb. 17, 1972, 72/02071

Int. Cl. B21d *53/02*; **B23p** *15/26*

U.S. Cl. 29—157.3 B **5 Claims**



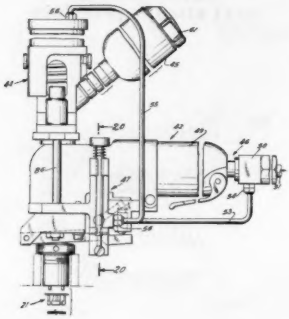
A method of manfuacturing a radiator from a strip of sheet material having a maximum thickness of 1 mm; by means of a die, rows of uniform apertures are punched, after which the strip is cut longitudinally through the centers of the apertures, so that strips having a maximum width of 25 mm are formed. The strips are then spaced apart a maximum distance of 3 mm with the apertures in alignment, and cooling water pipes are inserted in each row of apertures and soldered.

3,781,961

INSERT POSITIONING AND FASTENING APPARATUS

Peter Schenk, West Islip, N.Y., assignor to Dzus Fastener Co., Inc., West Islip, N.Y.

Filed Feb. 4, 1972, Ser. No. 223,455
Int. Cl. B23p *19/00, 19/04*
U.S. Cl. 29—200 P **9 Claims**



An apparatus for automatically positioning and fastening an insert in a panel. The apparatus includes a supporting structure and a releasable holding member on the supporting structure for holding the insert prior to and during the positioning thereof in the panel. A drive mechanism is on the supporting structure to automatically position the insert in the panel at the desired location. A reservoir of potting material is associated with the supporting structure for supplying a potting compound to the apparatus. The structure includes potting mechanisms for automatically supplying a predetermined amount of potting material to the positioned insert in the panel to fasten the insert therein. The apparatus provides for ejection automatically to release the insert from the structure after it has been properly positioned in the panel. Finally, the apparatus controls and orients the insert with respect to the panel and activates the drive, potting and eject mechanisms at the appropriate time.

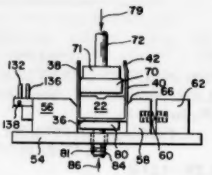
3,781,962

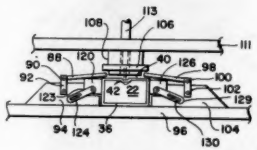
APPARATUS FOR APPLYING A METAL PLATE TO A REFRACTORY BRICK

Clarence G. Norris, Parkville, and Woodrow W. Merrick, Upperco, both of Md., assignors to General Refractories Company, Philadelphia, Pa.

Division of Ser. No. 51,223, June 30, 1970, Pat. No. 3,698,068. This application July 3, 1972, Ser. No. 268,633
Int. Cl. B23p *19/00*
U.S. Cl. 29—200 B **11 Claims**

A furnace block comprising a refractory brick having a metal casing is provided. In the construction of the furnace block, overlapping ends of the metal plate are secured together at an elongated groove formed along one surface of the brick to provide a metal casing for the brick. One end of the metal plate has an offset which is received in the elongated grove. The overlapping ends of the metal plate are connected by puncturing or welding to lock the overlapping ends together and to secure the metal plate to the brick. A method of applying a metal plate to a refractory brick is also provided. In this method, the brick is positioned on one surface of the metal plate at a position intermediate between the ends of the metal plate, and the ends of the plate are bent into contact with the sides of the brick by using the brick as a male die. During the bending, the metal plate is held firmly against the bottom surface of the brick. Then the portions of the metal plate which extend above the top surface of the brick are bent into contact with the top surface to overlap the ends of the metal plate while holding the previously bent portions of the metal plate firmly against the sides of the brick. Finally, the overlapping ends of the metal plate are secured together to provide a metal casing for the brick. An apparatus for producing the metal encased bricks is also provided.



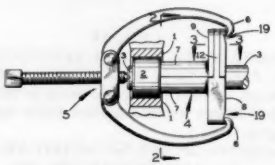


3,781,963

BEARING EXTRACTION DEVICE

Joseph Felser, Jr., 2208 Segori Cir., Coral Gables, Fla.

Filed Sept. 28, 1972, Ser. No. 292,949
Int. Cl. B23p *19/04*
U.S. Cl. 29—201 **4 Claims**



A fixture for removing bearings from a rotary shaft in a machine or device without disassembling same, which consists of a pair of slidable mating members which form a cylindrical sleeve applied to the shaft adjacent to the bearing to be removed and applying a well known screw type wheel or gear-puller onto the fixture with the screw of the puller centered in the end of the shaft. Clockwise rotation of the screw will urge the fixture against the inner end of the bearing and withdraw the bearing from its support.

3,781,964

APPARATUS FOR ASSEMBLING A CABLE COUPLING

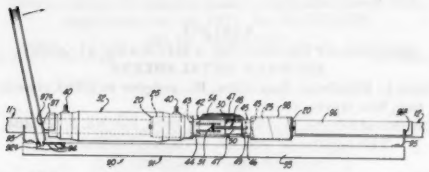
Francis V. Cunningham, Western Springs, Ill., assignor to Joslyn Mfg. and Supply Co., Chicago, Ill.

Filed July 19, 1971, Ser. No. 163,863
Int. Cl. H01r
U.S. Cl. 29—203 HM **5 Claims**

There is provided an improved jack for assembling a cable coupler, including an elongated jack base provided with holes along its length. The jack base has an end support adjacent

one end for receiving and positioning a cable end portion. A brace is provided operatively associated with the end support.

A jack lever is engageable with said holes for applying mechanical leverage progressively to components of a cable



coupler. The method of assembly includes the provision of pre-formed elastomer under unitial load or stress which are assembled into final position. The load of stress is then released or transferred to provide the completed assembly.

3,781,965

REPAIR OF LIFTING LUGS ON INGOT MOULDS

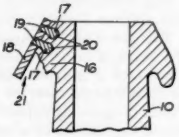
Donald Bone, Cheadle Hulme, England, assignor to Hilti Aktiengesellschaft, Landstrasse, Schaan, Liechtenstein

Filed Oct. 2, 1972, Ser. No. 294,202

Claims priority, application Great Britain, Oct. 29, 1971, 50,305/71

Int. Cl. B22c *9/12*; **B23p** *7/00*

U.S. Cl. 29—401 **4 Claims**



To restore an ingot mould to usefulness after a lifting lug thereof has been damaged by its lobe having been broken off, a repair plate is secured to the upper outer surface of the remaining part of the lifting lug by means of anchorages of weld metal which fill bulb holes in the remaining part of the lug and corresponding holes in the repair plate which is disposed to project downwards adjacent and to define a cavity between itself and the fractured surface of the lug, which cavity is then filled with weld metal.

3,781,966

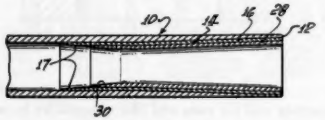
METHOD OF EXPLOSIVELY EXPANDING SLEEVES IN ERODED TUBES

Irving Lieberman, Covina, Calif., assignor to Whittaker Corporation, Los Angeles, Calif.

Filed Dec. 4, 1972, Ser. No. 311,492

Int. Cl. B22d *19/10*; **B23p** *7/00*

U.S. Cl. 29--401 **10 Claims**



The method comprises explosively expanding a first metallic sleeve into engagement with a severely eroded section of a tube and thereafter explosively expanding a second metallic sleeve of approximately the same diameter as the first sleeve into engagement with the first sleeve to cover cracks formed in the first sleeve due to excessive expansion of portions of the first sleeve resulting from the erosion-produced, tapering of the inner wall of the tube.

3,781,967

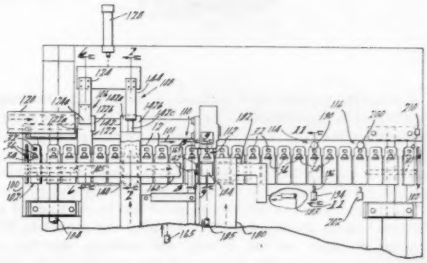
BUCKLE ASSEMBLY MACHINE AND METHOD

Robert C. Fisher, 580 E. Long Lake Rd., Bloomfield Hills, Mich.

Filed Sept. 25, 1972, Ser. No. 291,678

Int. Cl. B23p *21/00*

U.S. Cl. 29—430 **29 Claims**



A buckle assembly machine and method wherein buckles are fabricated by assembling the component parts thereof on individual tongues connected together in a driven endless belt. The tongues are similar to those with which the buckles are ultimately used.

3,781,968

METHOD FOR MANUFACTURING STEEL SHEETS WITH LAYERS OF PROTECTIVE METAL

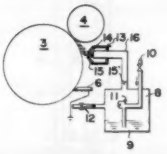
Hidehisa Yamagishi, and Fumitoshi Yokoi, both of Kawasaki, Japan, assignors to Nippon Kokan Kabushiki Kaisha, Tokyo, Japan

Filed June 2, 1972, Ser. No. 259,287

Claims priority, application Japan, June 16, 1971, 46/42498

Int. Cl. B22f

U.S. Cl. 29—420 **4 Claims**



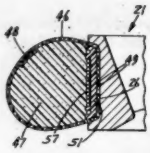
In a method of manufacturing a steel sheet coated with a layer of protective metal wherein a powder of the metal is coated on the surface of the steel sheet and the coated steel sheet is dried and then rolled by means of a rolling mill to form a layer of the protective metal bonded to the surface of the steel sheet, a small quantity of atomized oil is electrostatically applied onto the surfaces of the rolls of the rolling mill and the applied oil is treated with equalizing rolls to form thin oil films of uniform thickness on the surfaces of the rolls whereby to prevent the powder of metal from adhering to the surfaces of the rolls.

3,781,969

METHOD OF FORMING ROTATABLE SUTURING MEMBER ON A DEVICE

Lawrence Anderson, Minneapolis, Minn., assignor to Medical Incorporated, Minneapolis, Minn.

Continuation-in-part of Ser. No. 235,502, March 17, 1972.
This application Aug. 11, 1972, Ser. No. 279,936
Int. Cl. B23p 9/00
U.S. Cl. 29—445 9 Claims



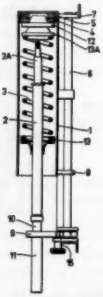
A suturing member and method of forming the suturing member on an implantable device, as a heart valve. The suturing member has a porous fabric cover surrounding a semi-rigid plastic core. An annular sleeve of heat shrinkable plastic material located within the cover holds the cover in assembled relation with the device in a manner which allows for rotaton of the device after the suturing member has been attached to the heart tissue. In the method of forming and mounting the suturing member on the device, the suturing member is shaped and cured on the device with the use of a mold. The mold is heated to cure the plastic core of the suturing member and bond the core to the inner surface of the cover.

3,781,970

METHOD AND A TOOL FOR MOUNTING AND DISMOUNTING SPRING SHOCK ABSORBING MEANS

Carl Ewert Ferdriksson, Rimbo, Sweden, assignor to Domkraft AB Nike, Eskilstuna, Sweden

Filed Aug. 13, 1971, Ser. No. 171,581
Claims priority, application Sweden, Aug. 19, 1970, 11290/70
Int. Cl. B23p 11/02
U.S. Cl. 29—446 15 Claims



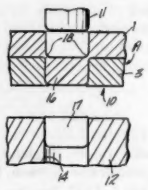
A tool for mounting and dismounting a suspension unit comprising a shock absorber with a surrounding helical spring member in motor cars. On mounting the spring is brought into a protective tube and made to engage an abutment at one end of the tube. A ram acting against one end of the shock absorber is activated and compresses the spring to bring the opposite end of the shock absorber level with the corresponding extremity of the spring so as to allow for connection therewith. On dismounting the opposite steps are taken. In known tools accidents have occurred due to the spring having loosened abruptly during the clamping operation. This danger and other disadvantages are eliminated in the tool according to the present invention.

3,781,971

METHOD OF PRODUCING A MECHANICAL JOINT BETWEEN METAL SHEETS

Verne L. Middleton, East Alton, Ill., assignor to Olin Corporation, New Haven, Conn.

Division of Ser. No. 64,983, Aug. 9, 1970, Pat. No. 3,729,804.
This application Dec. 29, 1971, Ser. No. 213,517
Int. Cl. B23k 21/00
U.S. Cl. 29—470.1 5 Claims



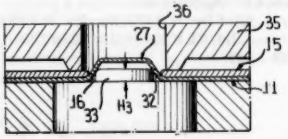
A method and apparatus for joining two or more sheets of metal together and the composite metal blank and mechanical joint produced thereby. A punch and die apparatus is employed wherein a slug is extruded from a first sheet and embedded in a hole provided in a second sheet by the punching action of the slug. The punch never contacts the die itself and the resulting joint is between the slug from the first sheet and the second sheet in which it is embedded. The slug formed from the second sheet is sheared from the composite. By performing this operation in opposing corners of the two sheets, the sheets are secured together so as to prevent relative motion between them. The invention is particularly applicable to the information of composite metal blanks having a pattern of stop-weld material sandwiched between the sheets.

3,781,972

METHOD OF SECURING A PULL RING TO AN EASY OPENING CAN END

Christian Enjolras, Pavillons-s-Bois; Pierre Gautier, Ville-d Avray, and Emile Billy, St-Cloud, all of France, assignors to Etablissements J. J. Carnaud & Forges De Gasse-Indre, Paris, France

Filed Oct. 22, 1971, Ser. No. 191,731
Claims priority, application France, Oct. 30, 1970, 7039180
Int. Cl. B21d 39/00; B23p 11/00
U.S. Cl. 29—509 12 Claims



This invention relates to the attachment of a pull tab to an easy opening end for cans and like receptacles by means of a novel rivet formation wherein the head of the rivet is of a thickness substantially approaching the original thickness of the material of the end. The rivet is formed in two punching steps each employing a flat headed punch.

3,781,973

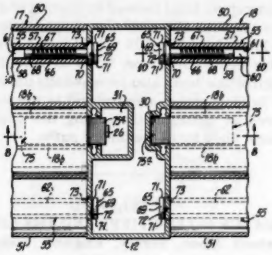
METHOD OF WALL CONSTRUCTION

S. Eugene Hubbard, and Lawrence F. Biebuyck, both of Niles, Mich., assignors to American Metal Climax, Inc., New York, N.Y.

Division of Ser. No. 41,951, June 1, 1970, abandoned. This application Oct. 26, 1971, Ser. No. 192,534

Int. Cl. B23p *19/00*

U.S. Cl. 29—526 4 Claims



There is provided an improved wall construction including a vertical mullion and a horizontal member. The horizontal member is provided with longitudinally extending screw splines. The members may be assembled in the known shear block method, or in a known screw spline system, or further in accordance with the present invention the members may be assembled in accordance with an improved shear pin system. The shear pin system employs a shear pin which joins the horizontal members to the vertical mullions. The vertical mullion is prepared for the attachment of a horizontal member by forming holes to receive the head of a shear pin, and the horizontal member is prepared by the insertion of the shear pins into screw splines formed in the horizontal member. The horizontal member is then installed on the vertical by installing the head of the shear pin into the hole previously drilled in the vertical mullion, and then tapping the horizontal downward until the shear pins bottom in the holes.

3,781,974

WORKPIECE MANUFACTURING AND MACHINING DEVICE

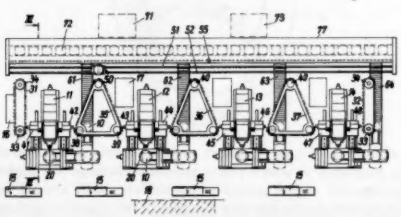
Horst Holzl, Ludwigsburg; Max Rosskopf, Marbach, and Laszlo Csikor, Ludwigsburg, all of Germany, assignors to Karl Huller Gesellschaft mit beschrankter Haftung, Ludwigsburg, Germany

Filed Jan. 11, 1971, Ser. No. 105,569

Claims priority, application Germany, Jan. 10, 1970, P 20 00 998.7

Int. Cl. B23q *3/157, 41/02*

U.S. Cl. 29—568 24 Claims



An arrangement wherein a plurality of machine tools are arranged in a row with each machine tool having an spindle and a tool changing device on each side for inserting tools into the spindle or removing tools from the spindle. On each side of each machine tool is a tool storage element for cooperation with the tool changing devices and each having an endless tool supporting conveyor. The storage elements between adjacent machine tools can cooperate with the machine tool on each side thereof while all storage elements cooperate with a main storage element extending along the row of machine tools. Each machine tool also has a workpiece supply conveyor leading from the machine tool to a main workpiece conveyor and storage device adjacent the main tool storage element. The installation is under automatic control for the supply of tools to the machine tools and the movement of workpieces therebetween and for the exchange of tools between the machine tools and between the main tool storage element and the machine tools or the storage elements adjacent the machine tools.

3,781,975

METHOD OF MANUFACTURING DIODES

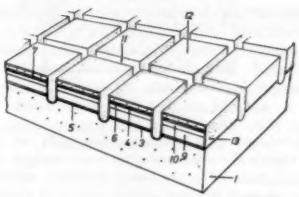
Franz Ressel, and Andreas Ritter, both of Heilbronn, Germany, assignors to Licentia Patent-Verwaltungs-G.m.b.H., Frankfurt, Germany

Filed June 24, 1971, Ser. No. 156,242

Claims priority, application Germany, June 24, 1970, P 20 31 071.8

Int. Cl. B01j *17/00*

U.S. Cl. 29—583 10 Claims



A method of manufacturing diodes comprises mounting, by one side, a semiconductor disc metallised on both sides on a carrier, and mounting a thin cover on the other side of the semiconductor disc, dividing the disc into a plurality of parts, forming an insulating coating on the divided parts, thereafter removing the insulating coating and the thin cover from the metallised surface of the disc parts and finally detaching the disc parts from the carrier.

3,781,976

METHOD OF MANUFACTURING CHIP-SHAPED SOLID STATE ELECTROLYTIC CAPACITORS

Hiroshi Tomiwa, Osaka, Japan, assignor to Matsuo Electric Company, Limited, Osaka-fu, Japan

Filed May 8, 1972, Ser. No. 251,304

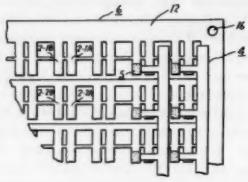
Claims priority, application Japan, May 26, 1971, 46/36151; July 19, 1971, 46/53780

Int. Cl. B01j *17/00*

U.S. Cl. 29—583 3 Claims

A method for manufacturing chip-shaped capacitor elements wherein a terminal array is formed within a rectangular frame with the terminals being arranged in rows and columns and held by supporting members. Capacitor elements with lead conductors are bonded to the terminals and then each

row of capacitors is enclosed within a synthetic resin. The molded rows of capacitors are then severed from the frame



and supporting members and the individual capacitors are then cut from said molded rows of capacitors.

3,781,977

SEMICONDUCTOR DEVICES

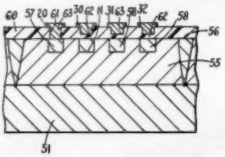
Harold Hulmes, Cheadle, England, assignor to Ferrant Limited, Hollinwood, Lancashire, England

Filed Sept. 8, 1971, Ser. No. 178,745

Claims priority, application Great Britain, Sept. 19, 1970, 44725/70

Int. Cl. B01j *17/00*

U.S. Cl. 29—584 **4 Claims**



The formation of a contact individually on at least one selected region of a semiconductor body, such as is required in the manufacture of a read-only memory store, comprises providing on each selected region a layer of contact material on a layer of insulating material, and applying a potential between the contact material and the selected region to cause the contact material to penetrate through the layer of insulating material.

3,781,978

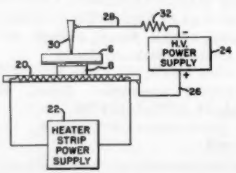
PROCESS OF MAKING THERMOELECTROSTATIC BONDED SEMICONDUCTOR DEVICES

Alexander M. Intrator, Dewitt, and Norbert Adams, Syracuse, both of N.Y., assignors to General Electric Company, Syracuse, N.Y.

Filed May 16, 1972, Ser. No. 253,879

Int. Cl. B01j *17/00*; **H01l** *7/02, 7/16*

U.S. Cl. 29—589 **1 Claim**



Semiconductor devices are provided in which a vitreous support member such as translucent glass plate serves as a principal support member for the semiconductor body of the device. One or more metallized paths are provided on a face of the vitreous support member which serves as a sealing surface. A major face of the semiconductor body equipped with one or more conductive contacts are provided, if desired, with an insulative and passivating layer, through which the contacts are exposed, is situated in confronting contacting relation with the vitreous support member and so arranged that the semiconductor body contacts register with the metallized paths on the vitreous support member. The vitreous support member and semiconductor body are permanently united by a thermo-electrostatic bond formed by heating to a temperature in the range of about 300-450° C and application of an electrostatic field of about 200-500 volts d.c. and a magnetic field having a flux density of about 3,000 to 20,000 gauss, such thermo-electrostatic bond also permanently uniting the metallized paths to the support member and to the semiconductor body, as well as permanently uniting the contacts on the semiconductor body to the metallized paths.

3,781,979

IMAGE INTENSIFIERS AND THE LIKE

Henry Dermott Stone, Surrey, England, assignor to U.S. Philips Corporation, New York, N.Y.

Filed Nov. 8, 1971, Ser. No. 196,289

Claims priority, application Great Britain, Nov. 18, 1970, 54,817/70

Int. Cl. H01s *4/00*

U.S. Cl. 29—592 **10 Claims**

Method of manufacturing a channel plate having membranes or films at an end of each channel, comprising allowing a liquid to extend by capillary action along the channels to form a meniscus at the channel mouths, solidifying the menisci to provide temporary supports, forming the membranes on the temporary supports and removing the temporary supports to leave the membranes behind. Also, the channel plate produced by this method.

3,781,980

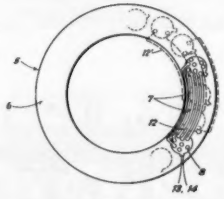
METHOD OF MAKING AN IMPROVED STATOR OR ARMATURE

Zinon C. Possis, Edina, Minn., assignor to Possis Corporation, Minneapolis, Minn.

Division of Ser. No. 187,398, Oct. 7, 1971, Pat. No. 3,725,708. This application Nov. 30, 1972, Ser. No. 310,816

Int. Cl. H02k *15/00*

U.S. Cl. 29—596 **2 Claims**



A method of making stators and armatures for dynamo electric machines in which the customary windings are replaced by extruded inserts seated in circumferentially spaced holes that extend axially through the core of the stator or armature, each of which inserts consists of a group of parallel spaced apart wires embedded in insulating material, the ends of the wires being connected to conductivity paths of printed circuit boards at the axially opposite faces of the core.

3,781,981

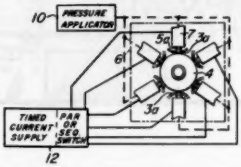
METHOD FOR MAKING ARMATURE-COMMUTATOR ASSEMBLY HAVING ARMATURE WINDING OF VERY SMALL DIAMETER

Tatuo Miura, and Toshiro Kaneko, both of Kariya, Japan, assignors to Nippondenco Co., Ltd., Kariya-shi, Japan

Continuation-in-part of Ser. No. 810,238, March 25, 1969, abandoned. This application Feb. 28, 1972, Ser. No. 229,991

Int. Cl. H01r 43/00

U.S. Cl. 29—597 15 Claims



Apparatus and method for making an armature-commutator assembly having an armature winding wire of very small diameter comprising forming a plurality of wire-engaging fingers on the commutator, engaging a plurality of insulated conductors led out of the armature winding with the fingers, applying equal pressure simultaneously to all the engaging portions by a plurality of electrode bars whose number is equal to the number of the fingers and which have at their engaging end a recess portion of a depth which is approximately equal to the diameter of the comductor, and while continuing to apply that pressure, supplying to the electrode bars either equal valued currents simultaneously, or successively reduced currents sequentially for electrically connecting the fingers with the conductors.

3,781,982

METHOD OF MAKING A SUPERCONDUCTOR

Gerhard Ziemek, Hannover, and Ernst Scheffler, Langehagen, both of Ge. many, assignors to Kabel-und Metallwerke Gutehoffnungshutte Aktiengesellschaft, Hannover, Germany

Division of Ser. No. 884,846, Dec. 15, 1969, abandoned. This application Feb. 18, 1972, Ser. No. 227,367

Int. Cl. H01u 11/08

U.S. Cl. 29—599 1 Claim

A superconductor is provided as a tube made from a self-supporting thin sheet with axial welding seam and attached to a separately made carrier, either as an outside envelope or, in case of a tubular carrier, as an inside lining, but always in intimate contact with the respective cylindrical carrier surface.

3,781,983

METHOD OF MAKING PRINTING HEAD FOR THERMAL PRINTER

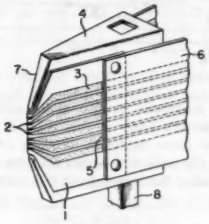
Kenji Hiruma, and Inawo Sugaya, both of Tokyo, Japan, assignors to Ricoh Co. Ltd., Tokyo, Japan

Division of Ser. No. 178,876, Sept. 9, 1971, Pat. No. 3,715,564. This application Aug. 14, 1972, Ser. No. 280,091

Claims priority, application Japan, Sept. 16, 1970, 45/81085

Int. Cl. H05b 3/00

U.S. Cl. 29—611 5 Claims



A plurality of heating resistors and their lead wires are formed upon a heat-resistive flexible film, and the flexible film is then curved and mounted upon a head structure in such a manner that the heating resistors are arrayed along a projecting edge of the head structure.

3,781,984

METHOD FOR MANUFACTURING ELECTRODES OF A DISPLAY DEVICE UTILIZING GAS DISCHARGE

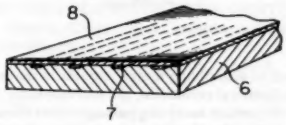
Takashi Maeda, and Yasunari Shirouchi, Akashi, both of Japan, assignors to Fujitsu Limited, Kamikodanake, Nakahara-ku, Kawasaki-shi, Kanagawa-ken, Japan

Filed July 5, 1972, Ser. No. 269,236

Claims priority, application Japan, July 15, 1971, 46/52104

Int. Cl. H05k 3/10, 3/28

U.S. Cl. 29—624 9 Claims



Electrodes manufactured by the method according to the present invention are used for generating a firing spot, which is utilized for an indication in a display device utilizing gas discharge or a plasma display panel. First, an electrode pattern having a predetermined dimension is formed in grooves on the inside surface of the dielectric supporting substrate; second, metal paste for electrodes is inlaid in the above-mentioned grooves then, said metal paste inlaid in the grooves is baked, and then the electrodes are formed on the supporting substrate.

3,781,985

METHOD AND APPARATUS FOR ASSEMBLING LINERS IN CONNECTORS

John L. Yonkers, 2030 Sunset Ridge Rd., Northbrook, Ill.

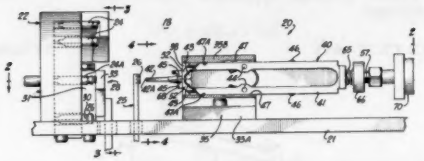
Continuation-in-part of Ser. No. 230,566, March 1, 1972. This application Mar. 21, 1973, Ser. No. 343,547

Int. Cl. H02g 15/00

U.S. Cl. 29—629 8 Claims

There is provided an improved method and apparatus for assembling inner liners with a connector of the type open at

one end and having a plurality of inwardly extending protuberances. In accordance with the method, the liner is inserted into the connector in generally U-shape with the ends thereof projecting from the open end of the connector. An elastic band is positioned at the open end of the connector and expanded over the connector to fit over the surface of the connector. The expanded band is then moved over the folded ends of the liner onto the outer surface of the connector thereby securing the ends of the liner with the elastic band. An apparatus is provided for carrying out this method.

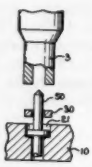


3,781,986

METHOD OF MOUNTING ELECTRICAL CONTACTS WITHIN A CONNECTOR BODY

Carl R. Joslyn, Unadilla, and John W. Dyce, Sidney, both of N.Y., assignors to The Bendix Corporation, Southfield, Mich.

Filed May 30, 1972, Ser. No. 257,614
Int. Cl. H01r *9/00*
U.S. Cl. 29—630 D **10 Claims**



A method of assembling metal contacts in thermoplastic inserts of an electrical connector, the thermoplastic body having a plurality of contact receiving passages therethrough, each of which has a shoulder therein and terminates through one face of the insert through a projection so that when a contact with a shoulder thereon is placed against the shoulder in the passage and the projecting portion is heated and caused to abut against the shoulder of the contact, the contact will be secured in the passage when the thermoplastic material cools.

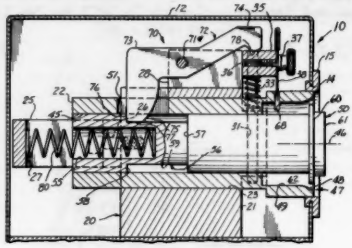
3,781,987

DEVICE FOR SLITTING THE SIDEWALL OF A WRAPPING OF A ROLL OF COINS

Stojan Gentscheff, 314 E. Floral Ave., Arcadia, Calif.

Filed Sept. 1, 1972, Ser. No. 285,639
Int. Cl. B26b *27/00*
U.S. Cl. 30—2 **15 Claims**

A device for slitting the sidewall of a wrapping of a roll of coins which includes a frame that has a plunger passage therein. The plunger passage has an axis and an open end. A plunger is axially slidable in the plunger passage. First bias means applies an axial force on the plunger tending to force it out of the plunger passage. Slitting means is mounted to the frame so as to be movable laterally relative to the axis, toward and away from the same. Linkage means interlinks the plunger and the slitting means, whereby pressing the end of a wrapped roll of coins against the plunger to force the plunger into the plunger passage to a sufficient depth will cause the linkage



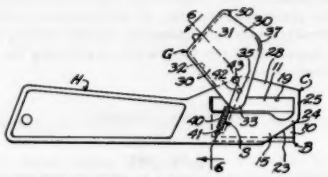
means to force the slitting means toward the axis and sufficiently far into the plunger passage so that it will slit the sidewall of the coin wrapper.

3,781,988

SAFETY PAPER CARTON OPENING BLADE HOLDER

Roger E. Jones, P.O. Box 68, Agoura, Calif.

Filed Aug. 29, 1972, Ser. No. 284,607
Int. Cl. B26b *5/00, 29/02*
U.S. Cl. 30—2 **8 Claims**



A blade holder comprising a grip and a handle molded integrally therewith, of hard plastic material, is provided with a guard pivotally attached thereto for retracting movement to uncover the corner of a blade held in the grip, the pivotal attachment being provided by trunnions integral with respective sides of the grip and received in apertures in respective side walls of the guard, which are of sufficient resiliency to be sprung over the trunnions during assembly of the guard to the grip. A tension spring is connected to integral posts on a side of the grip and on a corresponding side wall of the guard, positioned so that the spring will move over center with respect to the pivot axis in shifting from a closed to an open position, and the guard will be held in each of such positions by the spring.

3,781,989

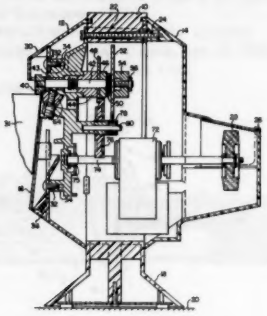
CAN OPENER

Myron Swetlitz, and James A. Richard, both of Monroeville, Pa., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed June 1, 1972, Ser. No. 258,594
Int. Cl. B67b *7/38, 7/30*
U.S. Cl. 30—4 R **9 Claims**

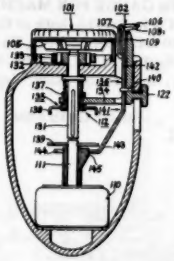
The disclosed device is a power driven can opener in which the outer layer of the end seam of a can is severed. The disclo-

sure is particularly directed to specific critical dimensions and relationships of the parts which yield a commercially practical



electrically powered can opener adapted to open most of the cans encountered in normal use in the home.

3,781,990
DRY SHAVER WITH SELECTIVELY ENGAGABLE SHORT AND LONG HAIR CUTTERS
Aldo Loner, Klagenfurt, Austria, assignor to U.S. Philips Corporation, New York, N.Y.
Division of Ser. No. 44,150, June 8, 1970, Pat. No. 3,690,000.
This application July 24, 1972, Ser. No. 274,673
Int. Cl. B26b *19/20*
U.S. Cl. 30—34.1 **4 Claims**



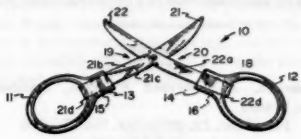
A dry shave appliance having a shaver part composed of at least one long hair cutting part with upper and lower cutters and a motor with a drive member. A coupling piece and an operating element are also provided with the coupling piece displaceable by the operating element positionable in at least two working positions.

3,781,991
BRUSH CUTTER
Joseph Blake Stretton, Wilton, and William Borachok, Byram, both of Conn., assignors to Textron, Inc., Providence, R.I.
Filed Sept. 17, 1971, Ser. No. 181,322
Int. Cl. B26b *25/00;* **A01d** *55/18*
U.S. Cl. 30—276 **8 Claims**

A rotary brush cutter blade comprises a flat plate shaped to provide a relatively small number of blade portions, for example, from three to 10, radiating from a central hub portion. The blade portions are symmetrical and have bevelled cutting edges at both sides so that the blade is reversible. The cutting edges are bevelled downwardly so that the leading edges are in the plane of the upper face of the blade. The blade portions

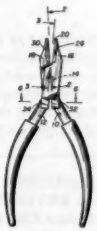
merge smoothly into the central hub portion to avoid stress concentrations and provide a strong structure.

3,781,992
COLLAPSIBLE SCISSORS
William M. Barr, 1512 S. 19th East, Salt Lake City, Utah
Filed Mar. 24, 1972, Ser. No. 237,657
Int. Cl. B26b *13/12*
U.S. Cl. 30—255 **1 Claim**



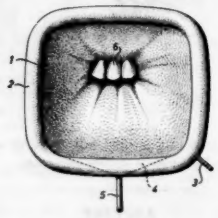
A scissors that can be collapsed to present a small, safely handled unit. Reversely turned blades each provide a cutting portion and a spring loaded handle engaging portion, the spring loaded handle engaging portion being arranged to prevent inadvertent collapsing of the scissors.

3,781,993
LIGHT WIRE PLIERS FOR ORTHODONTISTS
Anthony J. Cusato, Closter, N.J., assignor to Henry Mann, Inc., Feasterville, Pa.
Filed June 15, 1972, Ser. No. 263,010
Int. Cl. A61c *7/00*
U.S. Cl. 32—66 **2 Claims**



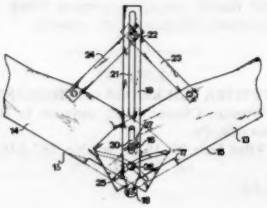
A light wire pliers particularly for use by orthodontists is particularly disposed for the making of very small helical loops as well as vertical loops in light tempered wire such as is used by orthodontists. Inserted hardened high speed steel facing portions are fixed, as by soldering, to stainless steel jaw members of the pliers so as to face the jaws so that those extremely small size jaw ends may be used to form the wire without bending, deformation, wear or breaking of these jaw portions.

3,781,994
ARRANGEMENT FOR SEPARATING AN AREA OF OPERATION OR TREATMENT IN THE ORAL CAVITY
Sven-Gunnar Hesselgren, Nybrogatan 12, Stockholm, Sweden
Filed Feb. 2, 1972, Ser. No. 222,892
Claims priority, application Sweden, Feb. 8, 1971, 1548/71
Int. Cl. A61c 5/12
U.S. Cl. 32—35 6 Claims



A device for separating a larger or smaler area, i.e., teeth, of the oral cavity for dental treatment consisting of a dam of an elastic material intended to be applied over said area and to be fixed in its position by a streching means, whereby said dam is surrounded by and connected to a inflatable frame piece.

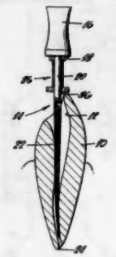
3,781,995
COMPASSES
Pierre Debeaux, 2 Boulevard d'Arcole, Toulouse-Haute-Garonne, France
Filed Mar. 22, 1972, Ser. No. 236,906
Int. Cl. B43l 9/00
U.S. Cl. 33—27 F 5 Claims



Improved compasses consisting of two arms adapted to be locked in adjustable angular positions and of a scriber arranged at the intersection of the useful edges of these arms; a circle is drawn by placing the compasses on the sheet and causing it to slide in such a manner that the straight edges of the arms pass at all times through two fixed points.

3,781,996
ROOT CANAL REVERSIBLE STOP
Dennis W. Saffro, 10158 Hollow Glen Cir., Los Angeles, Calif.
Filed Sept. 11, 1972, Ser. No. 287,773
Int. Cl. A61c 11/00
U.S. Cl. 32—57 6 Claims

An endodontic instrument for treating a pulp canal includes an elongated member having a flated cutting portion at one end, a handle at the other and an intermediate part between the cutting portion and the handle. Selected stops of a set of reversible stop members are individually positionable on the intermediate portion in abutment with a lower shoulder of the handle, each of the stop members having a different length so as to adjust the effective length of the cutting portion. Each stop has a small and large stopping end to allow files to be used

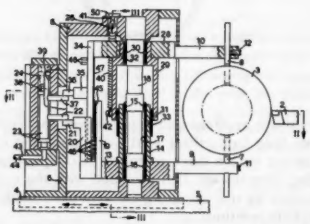


individually or together on a single tooth, and each stop has an interior rubber holding section penetrated by the cutting portion to hold the stop.

ERRATUM

For Class 33—27.6 see:
Patent No. 3,781,995

3,781,997
DIAMETER GAUGE FOR MACHINE TOOLS
Elio Pagella, and Carlo Guerici, both of Ivrea, Italy, assignors to Ing. C. Olivetti &C., S.p.A., Ivrea, Turin, Italy
Filed Sept. 28, 1971, Ser. No. 184,566
Claims priority, application Italy, Sept. 30, 1970, 70262 A/70
Int. Cl. G01b 5/00
U.S. Cl. 33—143 L 6 Claims



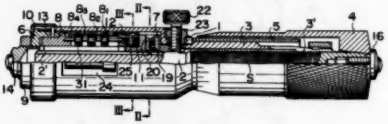
A diameter measuring gauge for machine tools comprising two opposed feelers both movable with respect to one another. The feelers are mounted on arms carried by sleeves that slide on a column. The arms are biased in so that the feelers contact the workpiece with the proper pressure. A hydraulic cylinder coupled to the arms drives the two arms until the feelers make initial contact with the workpiece, then the hydraulic pressure is removed. Measurement is accomplished by a pair of windings carried by the arms in juxtaposition to each other to electrically interact to produce an electrical signal proportional to the diameter of the workpiece.

3,781,998

INSIDE MICROMETER COMPRISING A COUNTER

Katsutoshi Okazaki, Kure, Japan, assignor to Yehan Numata, Tsurumi-ku, Yokohama, Japan

Filed Feb. 1, 1972, Ser. No. 222,566
Claims priority, application Japan, Apr. 2, 1971, 46/24882
Int. Cl. G01b *5/00*
U.S. Cl. 33—166 **1 Claim**



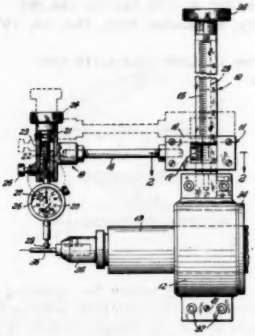
Compact inside micrometer comprising counter directly or indirectly connected to a guide which operates scale-carrying rings in the counter through a connecting bush interlocked with a spindle. The counter may be adjusted by separating the connecting bush from the guide.

3,781,999

CUTTING TOOL SETTING DEVICE

Peter J. Colangelo, 168 Laughlin Rd., East, Stratford, Conn.

Filed Apr. 26, 1972, Ser. No. 247,843
Int. Cl. B27g *23/00*; **G01b** *3/22*
U.S. Cl. 33—185 R **6 Claims**



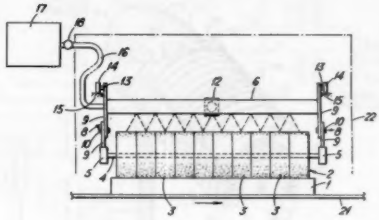
A device for temporary attachment over the spindle arm of a boring machine to enable the precise positioning of a boring tool in the machine. The tool setting device comprises a mounting element and an adjustable carriage slidably attached to the mounting element, the exact positioning of the carriage on the mounting element being made possible by the cooperation of a ture scale on the latter with a vernier on the carriage. The carriage also comprises an indicator gauge which is adjustably secured thereto and which is adapted to correlate the position of the carriage on the mounting element with the axis of rotation of the spindle and to indicate the precise position at which the cutting bit of the boring tool should be secured in the machine in order to bore a hole having the precise dimensions indicated by the vernier.

3,782,000

DRYING OF TIMBER

John H. Pless, 48 Kinnerton St., London, S.W. 1, England

Filed June 12, 1972, Ser. No. 261,716
Claims priority, application Great Britain, June 16, 1971, 28,271/71
Int. Cl. F26b *3/00*
U.S. Cl. 34—9.5 **7 Claims**



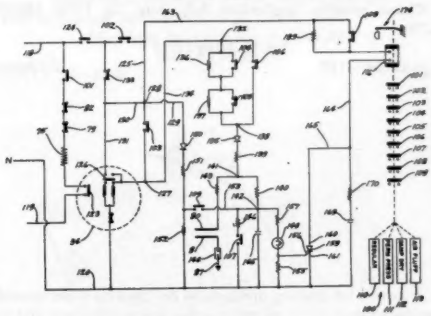
A process for seasoning boards or planks of lumber is described in which the lumber is continuously moved through a drying chamber and the lumber is heated to reduce the moisture content to a required level. To prevent the surface of the lumber drying out in advance of the centre the surface of the lumber is intermittently brought into contact with one or more freely rotatable wetting rollers during the passage of the lumber through the drying chamber.

3,782,001

CLOTHES DRYER CONTROL

Curran D. Cotton, Newton, Iowa, assignor to The Maytag Company, Newton, Iowa

Continuation-in-part of Ser. No. 124,042, March 15, 1971, Pat. No. 3,710,138, which is a division of Ser. No. 803,687, March 3, 1969, Pat. No. 3,599,342. This application Aug. 10, 1972, Ser. No. 279,659
Int. Cl. F26b *19/00*
U.S. Cl. 34—45 **12 Claims**



A control system for a clothes dryer including a dryness sensing circuit comprising a resistance-capacitance circuit portion operable for initiating termination of the clothes dryer responsive to preselected dryness conditions of articles therein. The control system further includes selectable means for precharging a capacitance circuit and effecting a treatment for "permanent press" fabrics, for example, whether they be wet or dry.

3,782,002

HAIR DRYER PARTICULARLY ADAPTED TO THE DRYING OF LONG HAIR

Bruno P. Morane, Paris, France, assignor to L'Oreal, Paris, France

Filed May 12, 1972, Ser. No. 252,593
Claims priority, application France, May 21, 1971, 7163200
Int. Cl. A45d *20/00*
U.S. Cl. 34—99 5 Claims

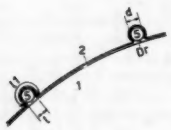
Hair dryer is provided with an accordion-pleated duct at its head-receiving opening and means for locating a head centrally of the free end of said duct, so that hot air flows outwardly near the periphery of the duct but the hair on said head is drawn inwardly near the axis of said duct.

3,782,003

DEVICE FOR SHIFTING PRODUCTS TO BE DRIED ON A PERFORATED DRYING DRUM

Felice Garzotto, Valdagno, Italy, assignor to Rimar S.p.A., Trissino, Vicenza, Italy

Filed Aug. 16, 1971, Ser. No. 172,009
Claims priority, application Italy, Aug. 22, 1970, 28885 A/70
Int. Cl. F26g *13/12*
U.S. Cl. 34—110 5 Claims



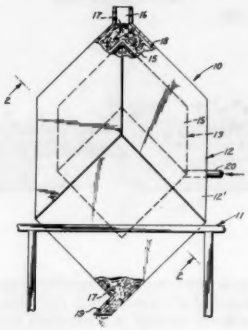
A device for shifting products to be dried on a perforated drying drum in order to increase the drying efficiency and to prevent the formation of a pattern of the drum holes on the same products, comprises a cylinder, having its longitudinal axis parallel to the axis of the drying drum, at a given distance which is adjustable. Said cylinder can be actuated by a side drive independently of the actuating system of said drum. When the diameter of said cylinder has been chosen, the distance from the drum surface can be varied in order to avoid the increase in the path of the product due the device becoming equal to the center distance between the drum holes or an integral multiple thereof. A plurality of these devices can be advantageously mounted on a drying drum.

3,782,004

DRYING APPARATUS FOR GRAIN AND THE LIKE

Floyd P. Black, 124 Downs Ave., Urbana, Ohio

Filed May 8, 1972, Ser. No. 251,248
Int. Cl. F26b *17/12*
U.S. Cl. 34—174 1 Claim



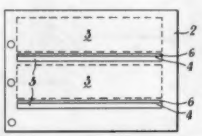
A drying device for bulk grain or other substances. This device consists primarily of a hollow box-like structure having spaced away from the walls on the interior, a perforated box-like structure through which hot air is placed under pressure so as to dry the grain carried within the space defined by the walls of both of the box structures.

3,782,005

AUDIO-VISUAL TEACHING SYSTEM CONSISTING OF A SELF PROPELLING MAGNETIC READING UNIT, SLIDING ALONG MAGNETIC TRACKS PRE-RECORDED ON PAGED SHEETS

Alessandro Oliveti, Rome, Italy, assignor to Soc. S.A.M.E.R., Rome, Italy

Filed Oct. 4, 1971, Ser. No. 186,185
Claims priority, application Italy, Oct. 14, 1970, 54027 A/70
Int. Cl. G09b *5/04*; G11b *5/80*
U.S. Cl. 35—8 A 3 Claims



An audio-visual teaching system for rendering easier the learning of scholastic matters at any level, wherein the support of the information and/or the images consists of illustrative sheets suitably paged and the sound reproduction is obtained by a self propelling magnetic reading unit slidable with a precisely constant speed along a pre-recorded magnetic track, secured to the paged illustrative sheet.

3,782,006

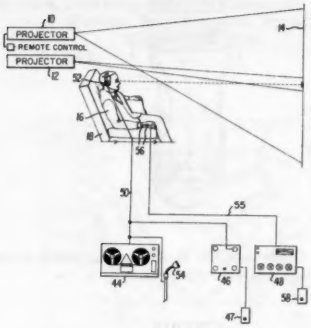
MEANS AND METHODS TO ASSIST PEOPLE IN BUILDING UP AN AVERSION TO UNDESIRABLE HABITS

Eliot N. Symmes, San Francisco, Calif., assignor to American Clinic, Inc., San Jose, Calif.

Filed May 26, 1972, Ser. No. 254,786
Int. Cl. G09b *19/00*
U.S. Cl. 35—22 R 10 Claims

Methods and means for assisting persons in breaking undesirable habits include means for projecting first and second

images onto a screen. The first image is a fixation image to induce a person to concentrate in a small limited area. The second image relates to an object or message relating to the



habits to be broken. Various additional sensory messages, such as electrical or audio signals, are communicated to the person while one or both of the images are being projected on the screen.

3,782,007

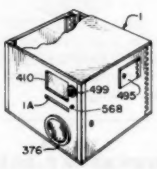
LESSON SELECTOR ELEMENT CONTROLLED DEVICE FOR PRESENTING VISUAL AND AUDIO LESSONS AND RECEIVING RECORDED ANSWERS ON A SOUND TRACK

James L. Streit, Rt. 3, Box 364, Vernon, Tex.

Filed July 17, 1972, Ser. No. 272,641

Int. Cl. G09b *5/06*; **G03b** *31/06*

U.S. Cl. 35—8 A **14 Claims**



A device for teaching a multiplicity of students the same subject matter or different subject matter on each of a plurality of machines, by presenting these in visual and audio form, asking pertinent test questions and receiving the answers on a sound track, such as a removable cassette tape, to enable the teacher to evaluate the progress of the student in the subjects being studied. A lesson selector element is utilized for each lesson to be taught. The lesson selector element automatically sets or resets the machine to the particular lesson to be taught. The lesson selector element thus teaches the lesson for a predetermined number of minutes, when the visual and audio portions are cut off, at which time a signal is given the student to answer or to recite answers to questions relative to the particular material taught, and to automatically stop and reject the lesson selector element, after the recorded material has been properly identified on the sound strip by indicia. The teacher may thus evaluate the answers in accordance with the subject matter exposed to the student.

3,782,008

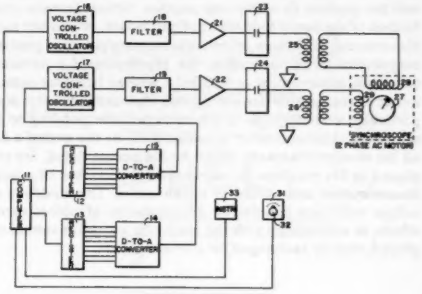
SYNCHROSCOPE TRAINING DEVICE

Evan E. Lloyd, Columbia, Md., assignor to The Singer Company, Binghamton, N.Y.

Filed May 9, 1972, Ser. No. 251,892

Int. Cl. G09b *23/06*

U.S. Cl. 35—19 A **7 Claims**



This is a system for simulating the operation of a synchroscope in an alternating current generating system which includes a power network or bus and a plurality of alternators which are to be paralleled to that bus. The system is usually a part of a large simulation system such as that which depicts the operation of a complete power plant. The simulator computer designates one of the alternators as the reference alternator which is presently supplying power to the bus. The reference frequency is designated by a number output from the computer, the value of which number represents the frequency of a variable frequency oscillator. A second output word from the computer represents the frequency of the second alternator which is to be paralleled to the first. This word is also converted to a voltage which determines the output frequency of a second variable frequency oscillator. The outputs of the two oscillators are then applied to the two coils of a standard synchroscope.

3,782,009

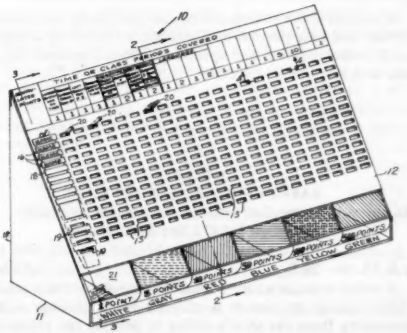
BEHAVIOR MODIFICATION POINT BOARD

Eula K. Darnell, 307 Baldwin, West Helena, Ark.

Filed Sept. 26, 1972, Ser. No. 292,451

Int. Cl. G09b *1/02*

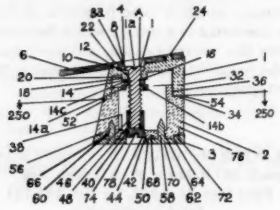
U.S. Cl. 35—23 R **9 Claims**



A device is described for keeping records of a point system for rewarding students for desirable classroom behavior and

scholastic achievement. The device comprises a board having an outer sheet with open rectangular slots, elevated by a plurality of transversely extending ribs mounted on an inner sheet. The slots are arranged in rows and columns, each row corresponding to a student's name and each column corresponding to a particular behavior trait or scholastic achievement. At the leftmost portion of the outer sheet, is a column of slots designed to accept pockets bearing the name of the student, so that the students' names line up with each row of slots and the pockets fit within one another. Scoop drawers at the bottom of the board hold sticks of cardboard, or another suitable material, of various colors, representing points of gradated magnitudes. When a student has accomplished a particular scholastic achievement or fulfilled a desired behavior pattern, a stick of the appropriate point value is placed in the slot in the particular student's row in the column corresponding to the scholastic achievement or behavior trait. At the end of a day, all the student's markers, which he has accumulated, are then placed in his envelope, or exhanged for a marker of a larger denomination and placed in his envelope. The student's envelope will then contain an accumulation of points earned which, in accordance with the particular incentive system employed, may be exchanged for a treat or favor.

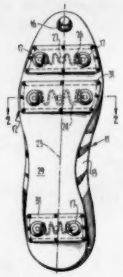
3,782,010
DETACHABLE HEEL FOR SHOES
Michele Frattallone, Fulvia Vella Piazza Parte Guelfa, 3/50123 Firenze, Italy
Filed Oct. 2, 1970, Ser. No. 77,559
Claims priority, application Italy, Oct. 3, 1969, 4798 A/69
Int. Cl. A43b *21/36*
U.S. Cl. 36—42 **3 Claims**



A heel for shoes having detachable main body, intermediate portion and base portion held into the innersole by a depending threaded member and upward positioned member engageable with the threaded portion.

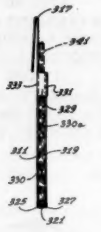
3,782,011
SAFETY SOLE FOR SPORT SHOE
Raymond F. Fisher, 2407 Hillside Ave., Berkeley, Calif.
Filed Oct. 5, 1972, Ser. No. 295,242
Int. Cl. A43b *23/28*
U.S. Cl. 36—59 R **7 Claims**

A safety sole for a football shoe is described which substantially reduces injuries to a player's ankle or knee without detracting from the shoe's ability to provide the player with firm footing. Rather than the ground engaging cleats of the shoe being rigidly secured to the remainder of the shoe, they are secured thereto through a flat, zig-zag spring having a resistance to deformation chosen to prevent movement of the shoe with respect to the cleats under normal playing conditions, but enable limited, resisted movement of such shoe with



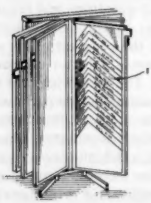
respect to the cleats upon the shoe being subjected to lateral forces exceeding a predetermined value.

3,782,012
NAMEPLATE AND BUSINESS CARDHOLDER
Charles Frederick J. Price, 11115½ Inglewood Ave., Inglewood, Calif.
Continuation-in-part of Ser. No. 44,002, June 8, 1970, abandoned. This application July 22, 1971, Ser. No. 165,307
Int. Cl. A44c *3/00*
U.S. Cl. 40—1.5 **1 Claim**



An identification device having a surface for the display of a person's name or other information and a compartment for the receipt of business calling cards.

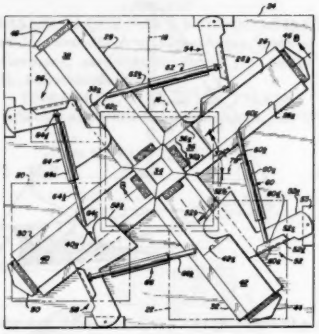
3,782,013
MICROFICHE OR CARD INDEX
Edward T. Hutchison, Jr., Silver Spring, Md., assignor to Walcott-Taylor Company Incorporated, Bethesda, Md.
Filed Mar. 10, 1972, Ser. No. 233,420
Int. Cl. G09f *1/10*
U.S. Cl. 40—124.2 **2 Claims**



A microfiche or card index including a backing sheet having a plurality of shingled pocket members superimposed thereon,

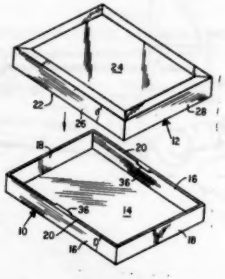
the pocket members being inclined to the longitudinal axis of the backing sheet. Each pocket is formed by a sheet which has been cut, scored and folded to form a rectangular recess.

3,782,014
ROTATABLE DISPLAY DEVICE
Allen Galen, 3470 Lake Shore Dr., Chicago, Ill.
Filed Jan. 8, 1973, Ser. No. 321,666
Int. Cl. G09f *11/30*
U.S. Cl. 40—64 R **10 Claims**



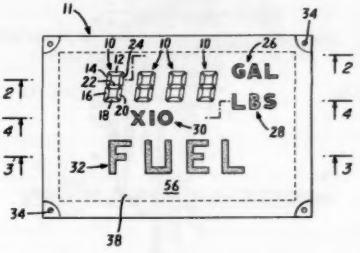
A rotatable display device which has a central display aperture in its front face where each of a plurality of photographs or the like may be viewed individually in sequence. The device is arranged for generally vertical orientation and the photograph at the display aperture may be changed by rotating the device about a horizontal axis. An internal gravity-actuated mechanism maintains all but one photograph in a stored position and prevents movement of a second stored photograph to the viewing position until the first photograph has moved from the viewing position to its stored position.

3,782,015
DISPLAY FRAMES
Walter Esry, 32 E. 10th St., New York, N.Y.
Filed Aug. 26, 1970, Ser. No. 67,186
Int. Cl. G09f *1/12*
U.S. Cl. 40—152 **5 Claims**



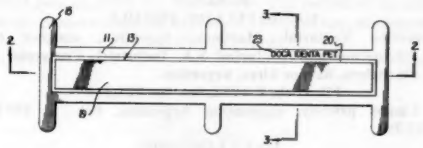
A display frame having an outer shell with a transparent face, and a plurality of peripheral sides forming an opening into which an object may be inserted. A core of corresponding configuration is provided which can be inserted within the opening to secure the object against the face of the shell, the shell being provided with tab means for releasably engaging the core to retain the core within the shell.

3,782,016
ANNUNCIATOR DISPLAY
Donald M. Ashton, Glen Ridge, and Richard Dubois, Jr., No. Caldwell, both of N.J., assignors to Wagner Electric Corporation, Newark, N.J.
Filed June 29, 1972, Ser. No. 267,488
Int. Cl. G09f *13/06*
U.S. Cl. 40—130 E **6 Claims**



An annunciator display especially useful in aircrew stations is disclosed. The annunciator display is a single integrated panel capable of transmitting fixed and variable messages under ambient light conditions.

3,782,017
COLLAR IDENTIFICATION TAG
Granville Y. Graham, 7212 Richland Dr., Lynchburg, Va.
Filed Nov. 11, 1971, Ser. No. 197,722
Int. Cl. G09f *3/16*
U.S. Cl. 40—303 **8 Claims**

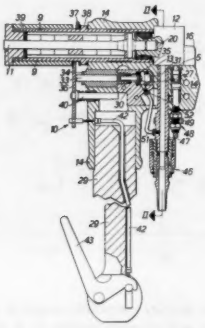


An animal identification tag is described herein comprising a main body, for attaching the identification tag to a collar, and a porous indicia-receiving coating material, for receiving and displaying a marking material. In one embodiment, the main body is formed of a soft aluminum and has protruding tabs which can be wrapped around a collar. In another embodiment, the main body is permanently attached to a collar by rivets, or the like. Both paint and tape are disclosed as indicia-receiving coating materials. In the case of an indicia receiving paint a primer paint is applied between the main body and the paint.

3,782,018
HUMANE CATTLE KILLERS AND SIMILAR MANIPULATABLE APPLIANCES
Roger John Hancox, Burntwood, England, assignor to Accles & Shelvoke Limited, Aston, Birmingham, England
Filed June 26, 1972, Ser. No. 266,254
Claims priority, application Great Britain, June 26, 1971, 30,056/71
Int. Cl. F41c *3/00*; A22b *3/02*; F41c *13/00*
U.S. Cl. 42—1 M **16 Claims**

An improved humane killer and associated apparatus. The invention introduces into the known captive bolt pistol type

humane killer means for pneumatically firing and ejecting the spent cartridge. This enables the pistol to be connected to pneumatic supply apparatus including a hopper, a cartridge orientating device, and a cartridge transfer device, whereby cartridges placed in the hopper are successively passed to the orientating device which ensures that each one is turned nose first into the transfer device which then transfers it to a pressurized feed tube abutting the breech block of the pistol and which serves as a magazine for continuous supply. Each time the breech is turned to the loading position a cartridge from the feed tube enters a cartridge chamber in the breech block. A pneumatic control mechanism senses a drop in pressure in the feed tube each time the breech block is in the loading position and this actuates the orientating device and the transfer device to supply a new cartridge into the feed tube.



3,782,019

GAS-EXPELLING PISTOLS

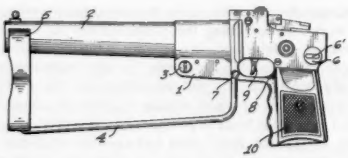
Guerrino Venturini, Martinez, Argentina, assignor to Establecimientos Venturimi S.A. Industrial, Comercial y Financiera, Buenos Aires, Argentina

Filed Feb. 2, 1972, Ser. No. 222,818

Claims priority, application Argentina, Feb. 2, 1971, 233,791

Int. Cl. F41c *23/00*

U.S. Cl. 42—72 **2 Claims**



A gas expelling pistol having a reversible butt end movable between a first or extended position wherein the pistol may be used as a long arm that is placed against the shoulder of the user, and a second position wherein the pistol may be used as a short arm.

3,782,020

FISHING APPARATUS

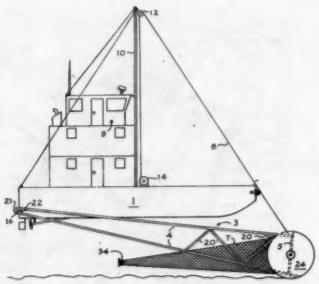
Delbert Vernon Puckett, 447 Demontluzin St., Bay St. Louis, Miss.

Filed Mar. 3, 1972, Ser. No. 240,555

Int. Cl. A01k *73/02*

U.S. Cl. 43—8 **12 Claims**

Apparatus and method for net-fishing from points forward of the bow of a fishing vessel, which may be a powered boat or a barge pushed by a powered craft. The net is supported by a tubular frame having beams that are pivoted at or near the stern of the vessel. A deck winch lowers the forward end of the connected frame and net from their elevated position over the bow and to a fishing location below the bow by means of a line over a pulley on a high mast. From this location the net trails below the vessel, with its forward opening for entry of fish during forward movement of the vessel. This mouth of the net is kept open by spaced cross pieces of the net frame. When used for fishing just above the sea bottom the apparatus preferably includes a fish-moving chain or set of teeth, extending across and in front of the base of the net mouth, fastened at its ends to forwardly projecting ends of side arms of the frame. When fishingfor oysters, the set of teeth is preferably used, for breaking oyster shells loose from an oyster bed. After a desired load of fish is in the net it and the forward end of the frame are pivotally lifted by the winch and line over the bow until the axis of the net is upright. Then its lower portion is untied (or un-zippered), and the fish is thus dumped onto the deck (or into the hold or a container).



3,782,021

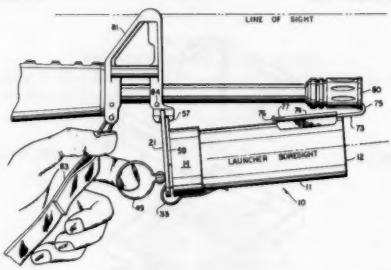
PROJECTILE LAUNCHING APPARATUS

Maxwell G. Atchisson, Apt. 1, Bldg. 14, Sussex Cir., Marietta, Ga.

Filed Jan. 31, 1973, Ser. No. 328,322

Int. Cl. F41c *27/06*

U.S. Cl. 42—1 F **16 Claims**



Apparatus for lauching a projectile such as a 40-mm cartridge grenade. A short barrel is provided to receive a grenade or other round to be launched, the barrel being dimensioned to be positionable beneath the front portion of the barrel of a firearm such as the U. S. Rifle M16. The launching apparatus includes a front support which is extendable to engage the flash suppressor of the firearm, while a rear support of the launcher includes a socket for engaging the bayonet lug of the

firearm. Both the front support and the rear support are deliberately designed to undergo a predetermined amount of structural deformation when subjected to recoil force produced by launching a projectile from the apparatus, and this predetermined deformation absorbs a portion of the recoil force. A hammer in the form of a spring is cocked by a pair of levers which pull the hammer back and which become disengaged from the hammer, so that the hammer and associated firing pin can fall to discharge the round. A safety mechanism prevents cocking of the hammer unless the launching apparatus is installed on a bayonet lug.

3,782,022

RELEASABLE LOCK FOR A BOLT OF A FIREARM

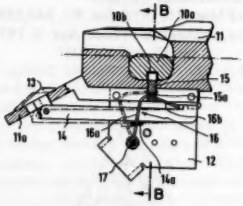
Heinz Bielfeldt, and Manfred Birkenhagen, both of Eckernforde, Germany, assignors to Firma J.P. Sauer & Sohn G.m.b.H., Eckernforde, Germany

Filed Mar. 27, 1972, Ser. No. 238,428

Claims priority, application Germany, Sept. 16, 1971, P 21 46 401.7

Int. Cl. F41c *17/08, 17/00*

U.S. Cl. 42—70 R **10 Claims**



A bolt lock assembly is provided for a firearm which has a rotatable bolt and safety actuating means for securing the firearm against firing. The lock assembly is connected to the safety means such that the bolt is secured when the actuating means secures the firearm against firing. A hand-manipulable release element is carried by the bolt handle to release the bolt for turning, independently of operation of the actuating means, such that the bolt may be turned even while the firearm is secured against firing.

ERRATUM

For Class 43—8 see:
Patent No. 3,782,020

3,782,023

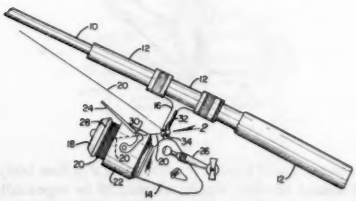
SPINNING REEL LINE CLAMP

Doyle D. Hendrickson, Evansville, Wyo., assignor to Reel Assist Corporation, Casper, Wyo.

Filed May 10, 1971, Ser. No. 141,517

Int. Cl. A01k *87/00*

U.S. Cl. 43—25 **5 Claims**



Spin fishing accessory for releasably securing the line at a point relative to the reel spool which prevents stripping line therefrom which may normally occur in its absence. In a preferred embodiment it comprises a lever member pivoted between its ends, one end forming a resiliently urged releasable clamping jaw, the other end forming a finger engaging portion for opening the jaw, and means for securing the member to the fishing apparatus. It is preferably secured to a part of the reel, such as the reel mounting shank, but may be secured to the reel butt when suitably proportioned.

3,782,024

FISH LURE

Carl R. Cordell, Jr., P.O. Box 2020, Hot Springs, Ark.

Filed June 23, 1972, Ser. No. 265,583

Int. Cl. A01k *85/00*

U.S. Cl. 43—42.31 **10 Claims**

A fish lure having a two-piece plastic body cemented together along a vertical longitudinal plane. A weighted eye member is positioned in a bore at the front of the body and secured in place by an intermediate flange extending into a groove formed in the bore. The weighted eye member simulates an eye for the lure and additionally is loosely mounted so as to rattle to produce fish attracting sounds as the lure is drawn through the water. Metallic eyes are secured to the lure for attaching the lure to a fish line and for attaching hooks to the lure.

3,782,025

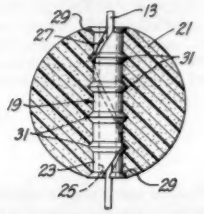
SINKER PUTTY MOUNTING MEMBER

Rudolph J. Kochevar, 252 Arbolada Dr., Arcadia, Calif.

Filed Jan. 22, 1973, Ser. No. 325,424. The portion of the term of this patent subsequent to Jan. 31, 1989, has been disclaimed.

Int. Cl. A01k *95/00*

U.S. Cl. 43—44.9 **17 Claims**



A sinker comprising readily manually moldable sinker putty molded on a mounting member attached to a fishing line. The mounting member is configurated to increase the strength of the attachment between the sinker putty and the mounting member and may comprise a sleeve slidable on the line or a plate, stem or piece of twisted wire fixedly attached to the line.

3,782,026

PEST EXTERMINATING APPARATUS

William A. Bridges, Rt. 2, Box 49 D, and Charles L. Harris, Rt. 2, Box 31, both of Luling, La.

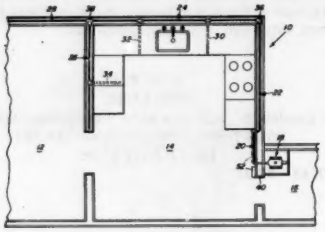
Filed Apr. 7, 1972, Ser. No. 242,108

Int. Cl. A01m

U.S. Cl. 43—124 **10 Claims**

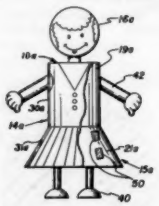
An apparatus for exterminating pests such as roaches, ants and the like including a vaporizer unit for converting a liquid

pesticide into a vaporous state and a distribution system for directing the pesticide in its vaporous state to desired locations. The distribution system will permit the vaporous pesti-



cide to be emitted during the operation of the vaporizer unit. A portion of the pesticide which is reconverted into a liquid state during distribution will accumulate on the distribution system to produce a residual exterminating potential.

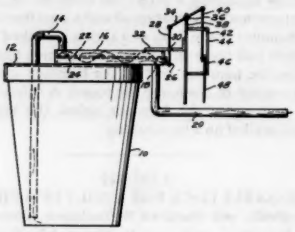
3,782,027
DOLL DRESS UP SET
Adolph E. Goldfarb, Tarzana, and Howard L. Dekan, Chatsworth, both of Calif., assignors to Adolph E. Goldfarb, Tarzana, Calif.
Filed Feb. 28, 1972, Ser. No. 229,832
Int. Cl. A63h *9/00*
U.S. Cl. 46—22 **4 Claims**



A doll figure provided with a regular smooth outer surface, and changeable dress-up means comprising a formable sheet having an outer surface on which a representation of clothing for the doll may be provided. The sheet is wrapped around the doll immediately adjacent and conforming to the doll's outer surface. The sheets are readily removable and replaceable with other sheets.

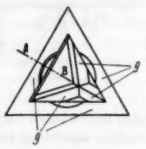
3,782,028
TOY OPERATED BY DRINKING STRAW
Henry J. Kelly, Buffalo, N.Y., assignor to The Raymond Lee Organization, Inc., New York, N.Y.
Filed Oct. 19, 1972, Ser. No. 298,851
Int. Cl. A63h *29/10*
U.S. Cl. 46—41 **1 Claim**

A toy comprising a hollow tube through which liquid can flow; a screw in the tube and rotated by the flow; a crank rotated by the screw; a linkage secured to said crank to convert the rotary motion to up and down linear motion; and a



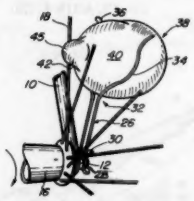
horse secured to said linkage and moved up and down thereby.

3,782,029
CONSTRUCTION SET AND ELEMENT THEREOF
Ernest Roger Bardot, Juziers, France
Filed Mar. 31, 1972, Ser. No. 240,055
Claims priority, application France, Apr. 2, 1971, 7111658
Int. Cl. A63h *33/10*
U.S. Cl. 46—26 **5 Claims**



A construction set comprises a plurality of skeletal tetrahedrons and interconnecting means therefor so that they can be assembled in a plurality of groups of different configuration and rotated relative to each other. The legs of the tetrahedrons have flange configurations for receiving correspondingly flanged resilient connectors.

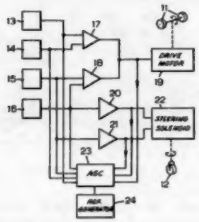
3,782,030
SINGING SOUND PRODUCER FOR BICYCLES
Frank A. Gergovich, 1114 Eighth St., La Salle, Ill.
Filed Dec. 4, 1972, Ser. No. 311,462
Int. Cl. A63h *5/00*
U.S. Cl. 46—175 R **4 Claims**



A harmonic sound producer comprising a hollow body with a B—B loaded resilient nipple adapted to be repeatedly engaged by a continuous series of rapidly moving elastic string-like elements, such as the wire spokes of a bicycle wheel, so as to produce singing sounds by the wire spokes of the wheel as

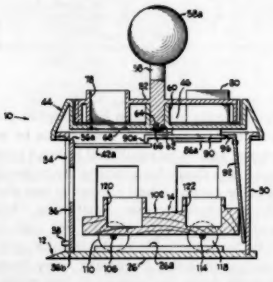
vibrating string-like elements that are resonant and tuned to various frequencies by changing the tension on the spokes.

3,782,031
CONTROLLABLE AMUSEMENT DEVICE
Melville Byron, Toronto, Ontario, Canada, assignor to Creative Patents & Products Limited, Ontario, Canada
Filed Feb. 23, 1972, Ser. No. 228,630
Claims priority, application Canada, Feb. 24, 1971, 106,134
Int. Cl. A63h *11/10*
U.S. Cl. 46—244 R **3 Claims**



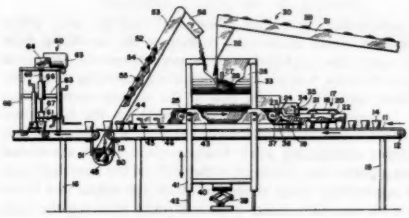
A self propelled amusement device including a body member shaped in any form which appeals to a child, a pair of drive wheels and at least one steering wheel for supporting the body member. The drive wheels are driven by means of a battery operated motor, and the steering wheel is controlled by a solenoid. Proximity detectors or other sensing devices are placed at both ends of the body member and at both sides. The proximity detectors may be sensitive to changes in capacity in their vicinity, and in such a case the presence of a hand of the child near one of the proximity devices causes a voltage to appear at the output thereof. Appropriate electronic circuitry is provided for controlling the operation of the drive motor and the steering solenoid in response to changes in electrical capacity occurring near any of the proximity detectors, so that the body member can be caused to travel forwards or backwards or to turn any desired direction by merely placing a hand or other body having electrical capacity near selected ones of the proximity detectors.

3,782,032
COMBINATION PRESCHOOL TOY VEHICLE AND LAUNCHING STATION
Marvin I. Glass, Chicago, and Palmer Schoenfield, Evanston, both of Ill., assignors to Marvin Glass & Associates, Chicago, Ill.
Filed Sept. 14, 1972, Ser. No. 288,931
Int. Cl. A63h *11/10*
U.S. Cl. 46—202 **2 Claims**



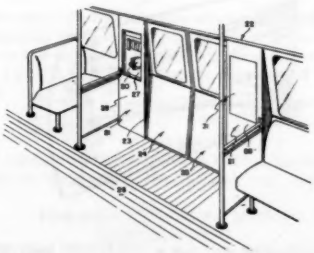
A combination preschool toy vehicle and launching station set characterized by the provision of an enclosure having a top with a drum rotatably mounted on the top. Both the drum and the top have alignable openings of different shapes. Further included are different block-like pieces with shapes corresponding to the openings in the drum and the top of the enclosure so that when the drum and top openings are in register the blocks or playing pieces may fall therethrough. In addition, vehicles that are provided with the set have different shaped openings which correspond to the shape of the blocks and the openings in the top and drum for receiving the blocks as they fall through the openings in the top. Also, the enclosure is provided with audible signal means and a door that is associated with a trip mechanism for striking the rear of the vehicles and imparting rolling action thereto when the door is lifted and moved to a raised position.

3,782,033
POT FILLING AND COMPACTING APPARATUS AND METHOD
Norman E. Hickerson, P.O. Box 1148, Apopka, Fla.
Filed Sept. 30, 1971, Ser. No. 185,037
Int. Cl. A01c *9/08*
U.S. Cl. 47—1 **10 Claims**



An apparatus and method for filling pots with soil and compacting the soil in the pots. Spilled soil is collected and returned to a hopper for re-use and a punch is provided for driving a hole in the soil in the pot.

3,782,034
ELECTRICAL DOOR OPERATOR
Robert J. Lynn, Morton Grove; Kristupas Daugirdas, Wilmette, and Redreddy Sukumar Reddy, Chicago, all of Ill., assignors to Vapor Corporation, Chicago, Ill.
Filed Apr. 14, 1972, Ser. No. 244,161
Int. Cl. E05f *15/00*
U.S. Cl. 49—13 **12 Claims**



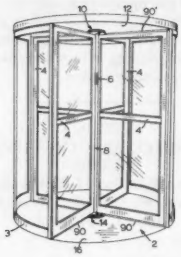
A door operator for a vehicle wherein resilient means couples the drive arm to the door to control the force applied by the door operator throughout the door closing cycle. The operator is compact and mountable in the side wall of the vehicle above the floor and includes an independent locking system, together with an emergency opening assembly.

3,782,035

COLLAPSIBLE REVOLVING DOOR HAVING PAIRS OF PIVOT DETENTS AT THE TOP AND BOTTOM OF EACH LEAF

Dennis Lowe, 58 Pitfield Rd., Agincourt, Ontario, Canada

Filed Oct. 26, 1972, Ser. No. 300,971
Int. Cl. E05d *15/02*
U.S. Cl. 49—44 **9 Claims**



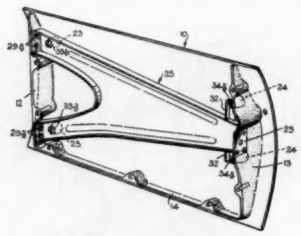
A collapsible revolving door with upper and lower mechanisms which enable the folding of the revolving door leaves upon the application of a predetermined abnormal pressure thereto. A mechanism includes a retaining plate concentrically mounted on the end of the central vertical door shaft; horizontal bearing plates mounted on the horizontal edge of each door leaf adjacent to the central shaft; and a pair of detents connecting each bearing plate to its associated retaining plate, one detent on either side of the door leaf axis. Upon application of an abnormal force, the upper and lower detents on one side of the door leaf yield allowing the door leaf to pivot about the detents on the other side of the leaf enabling folding.

3,782,036

DOORS FOR VEHICLES

George William Joseph Clark, Bayston Hill, near Shrewsbury; Gerald William Golder, Wellington, and Frederick Leslie Hart, Cressage, all of England, assignors to GKN Sankey Limited, Bilston, Staffordshire, England

Filed Aug. 17, 1972, Ser. No. 281,518
Claims priority, application Great Britain, Aug. 21, 1971, 39,314/71; Aug. 21, 1971, 39,315/71
Int. Cl. B60j *5/04*
U.S. Cl. 49—502 **8 Claims**



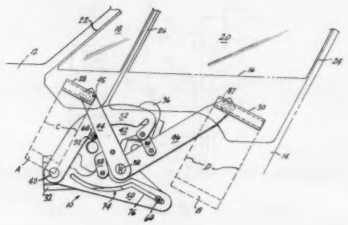
The specification discloses a vehicle door body of plastics material comprising an outer skin and an inner panel releasably secured together. A Y-shaped metal reinforcement is interposed between the skin and the panel and provides anchorages for the door hinges and lock and latch mechanism. The reinforcement is adjustably fixed to the outer panel so that the latter can be adjusted in position in a door aperture relative to the hinges. A vehicle body shell with the outer skins secured thereto is painted and then the inner panels carrying the door mechanisms are secured to the outer skins.

3,782,037

CAM OPERATED TWO-STAGE WINDOW REGULATOR

Max O. Heesch, Brooklyn, Mich., assignor to Hancock Industries, Inc., Jackson, Mich.

Continuation-in-part of Ser. No. 208,556, Dec. 16, 1971. This application July 31, 1972, Ser. No. 276,581
Int. Cl. E05f *5/12*
U.S. Cl. 49—103 **10 Claims**



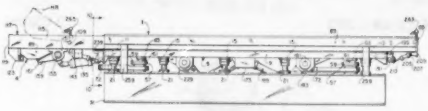
An automobile window regulator which sequentially operates two window panels adjacently mounted and substantially related in a coplanar manner, one of the panels constituting a small vent, while the other panel forms a primary window. The regulator is operated by a single crank, or electric motor, which oscillates a gear sector about a fixed pivot point. Pivotally mounted levers having cam surfaces defined thereon are engaged by cam followers mounted upon the gear sector wherein oscillation of the gear sector pivots the levers which indirectly operate the window panels. The cam surfaces produce the desired sequential operation, and are of such configuration as to further function as locking means for maintaining the window panels in terminal positions.

3,782,038

APPARATUS FOR GRAINING PLATES

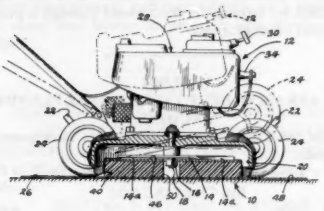
Robert E. Harrell, Manchester; Roy C. Bax; Leonard P. Kumpf, both of St. Louis, and Donald R. Toliver, Bridgeton, all of Mo., assignors to Western Litho Plate & Supply Co., St. Louis, Mo.

Filed May 5, 1971, Ser. No. 140,333
Int. Cl. B24b *19/00*
U.S. Cl. 51—6 **3 Claims**



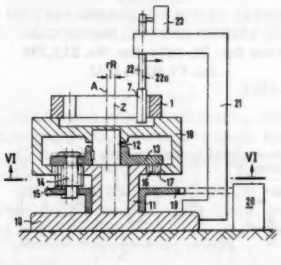
Apparatus for graining aluminum lithographic plates comprising a vacuum table adapted to hold plates to be grained thereon by vacuum, and to be oscillated in level position with steel balls thereon in a slurry for graining the exposed faces of the plates. The table carries a ball hopper at one end thereof, and is tiltable from its level graining position to a ball-unloading position inclined downward toward this end for gravity discharge of balls from the table to the hopper, and also to a ball-loading position inclined downward away from this end for delivery of balls from the hopper to the table, with the hopper swingable between a ball-receiving position and a ball-delivery position relative to the table.

3,782,039
SELF SHARPENER FOR ROTARY CUTTER
David W. Warwick, 3640 Upper Mountain Rd., Sanborn, N.Y.
Continuation-in-part of Ser. No. 96,565, Dec. 9, 1970, Pat. No. 3,665,658. This application May 16, 1972, Ser. No. 253,735. The portion of the term of this patent subsequent to May 30, 1989, has been disclaimed.
Int. Cl. B24b *19/00*
U.S. Cl. 51—250 13 Claims



A rotary mower blade sharpener device including a resiliently deformable body portion provided with an abrasive upper surface, and an anchor sheet fixed to the lower surface of the body portion to extend outwardly thereof. Relative rotation of the mower blade with respect to the upper surface of the body portion effects sharpening of the blade; the body portion being constrained from rotation by the wheels of the mower pressing the anchor sheet into engagement with the ground or other expansive surface. The anchor sheet may be formed of a pliable material and of sufficient size to permit its being folded or wrapped upwardly to enclose the body portion in a decorative shipping and/or storage envelope.

3,782,040
GEAR MACHINE
Hermann Harle, Laucherthal/Hohenzollern, and Siegfried Eisenmann, Sigmaringendorf, both of Germany, assignors to Furstlich Hohenzollernsche Huttenverwaltung Laucherthal, Laucherthal, Germany
Filed Aug. 19, 1971, Ser. No. 173,110
Claims priority, application Germany, Aug. 20, 1970, P 20 41 483.9
Int. Cl. B24b *1/00, 5/36*
U.S. Cl. 51—52 R 20 Claims



This invention relates to an improvement in a gear machine comprising an internally toothed outer wheel meshing with an externally toothed inner wheel wherein the outside diameter of the inner wheel is smaller than the root diameter of the outer wheel by at least the height of a tooth. The improvement comprises the tooth flanks of the outer wheel in sections normal to the axis of the outer wheel are defined at least in the upper half of the height of the teeth by equidistant curves from one or two like hypocycloids;

the diameter of a rolling circle which by rolling on a base circle that is concentric about the axis of the outer wheel is a fraction of the diameter of the base circle, wherein the numerator and denominator are integers;

the denominator of the fraction is equal to the number of teeth of the outer wheel;

in the event of the numerator of the fraction being equal to or greater than two, the numerator and denominator of the fraction have no common submultiple;

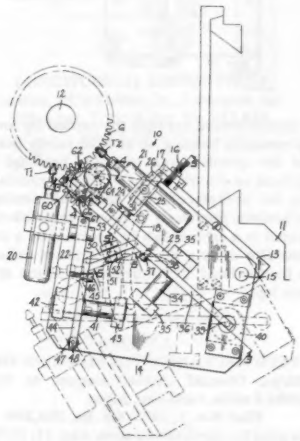
the equidistant curve is radially outside the cycloid or cycloids;

the outer wheel is hardened;

the tooth flanks of the outer wheel in the region defined by the equidistant curve are ground, and the tooth form of the inner wheel in the region of engagement is at least approximately defined by the rolling of the inner wheel in the outer wheel.

The invention also includes a method and apparatus for making the gear machine.

3,782,041
GEAR FINISHING APPARATUS
Edward J. Batorski, Cheshire, Conn., assignor to Textron, Inc., Providence, R.I.
Filed Mar. 7, 1972, Ser. No. 232,445
Int. Cl. B24b *17/00, 19/00*
U.S. Cl. 51—33 W 12 Claims

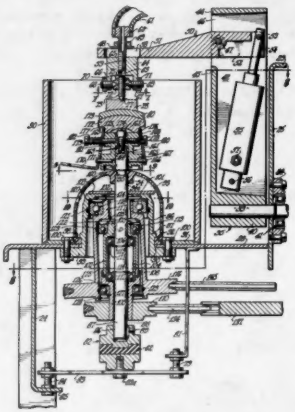


A gear tooth finishing machine wherein finishing tools are simultaneously brought into engagement with the edges of gear teeth and withdrawn therefrom as the gear is rotated and rotates a master gear which controls movement of the finishing tools.

3,782,042
LENS GRINDING AND POLISHING UNITS
Ray Howard Strasbaugh, 3400 Airport Way, Long Beach, Calif.
Filed July 3, 1972, Ser. No. 268,914
Int. Cl. B24b *13/02*
U.S. Cl. 51—58 10 Claims

A lens grinding and polishing unit wherein either the workpiece or lap is supported by a laterally oscillatable head and the other is held atop a non-rotating flexible spindle (e.g. aluminum) which is simultaneously flexed at different speeds and courses in a repetative pattern compounded by rotation thereabout of (a) an inner tubular housing which eccentrically

embraces the spindle at a circumference intermediate its length, and (b) an intermediate tubular housing spaced outward from the inner housing and which eccentrically bears on the inner housing adjacent the same circumferential area, separated from the inner housing by a ball bearing raceway. The intermediate housing is outwardly surrounded by a fixed housing from which it is separated by another ball bearing raceway, and all three generally concentric housings are mounted within an outermost dome of somewhat flexible material, the dome being supportingly transected by the spin-



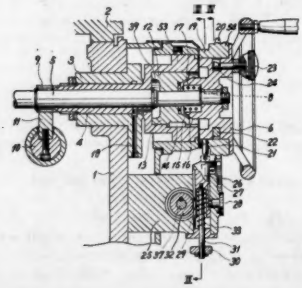
dle at a circumference between the carried lap and the top of the inner rotatable housing, so as to be jointly flexed by oscillation of the spindle. Both rotatable housings are pulley-operated from an electric motor which also oscillates the head (carrying the workpiece), thus totally eliminating cam and gear mechanisms previously employed in polishers. Adjacent units located in a cabinet can be operated by a single motor. Such units also carry a pneumatic element to supply down-pressure for the head, and provide circulation of lubricating fluid to the lap.

3,782,043

FEED MECHANISM FOR MACHINE TOOL

Tokio Shiga, Okazaki, Japan, assignor to Toyoda Kodi Kabushiki Kaisha, Aichi-ken, Japan

Filed Nov. 1, 1971, Ser. No. 194,306
Claims priority, application Japan, Aug. 11, 1971, 46/60820
Int. Cl. B24b *49/00*
U.S. Cl. 51—165.78 **6 Claims**



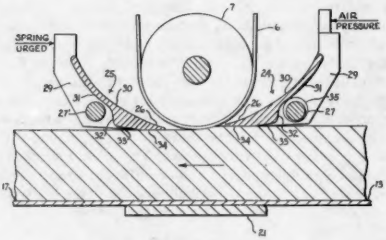
In a feed mechanism of a grinding machine for feeding a tool thereof, an annular member is adjustably mounted on the outer periphery portion of a feed wheel and a clamping member is provided on the feed wheel for locking the adjustable annular member thereto. A first stop member is secured on the annular member being movable in a circular path with the feed wheel when locked thereto and a second stop member is provided being reciprocatably movable into and out of the circular path of the first stop. Rotary movement of the feed wheel is transmitted by suitable transmission means to the second stop for advancing the same into the circular path so that the first stop may engage the second stop at a predetermined position of advancement of a tool support being effected by turning the feed wheel through a predetermined number of revolutions.

3,782,044

WIDE ABRASIVE BELT TYPE LUMBER PLANING MACHINE

Paul H. Olin, Minneapolis, Minn., assignor to Timesavers, Inc., Minneapolis, Minn.

Filed May 1, 1972, Ser. No. 249,175
Int. Cl. B24b *21/00*
U.S. Cl. 51—138 **6 Claims**



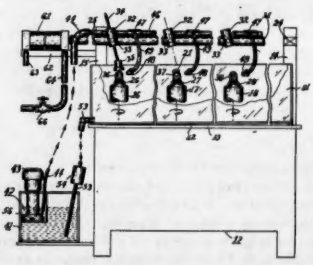
A wide abrasive belt lumber planing machine in which the planing action is performed by a contact drum-supported abrasive belt as the workpiece is moved through the machine, with its top surface in contact with the belt. An in-feed pressure shoe and an out-feed pressure shoe press down on the workpiece just as it enters and leaves the abrasion zone, and to preclude the generation of abnormally high friction loads due to variations in thickness of the workpiece, the force with which the in-feed shoe is pressed down is produced by a pressure-regulated air cylinder.

3,782,045

CONTACT LENS POLISHING SYSTEM

Masami Kanda, 1515 W. 48th Ave., Denver, Colo.

Filed Dec. 29, 1971, Ser. No. 213,395
Int. Cl. B24b *7/22*
U.S. Cl. 51—124 L **4 Claims**



A polishing solution recirculating system for use with contact lens polishing machines wherein lenses held by separate

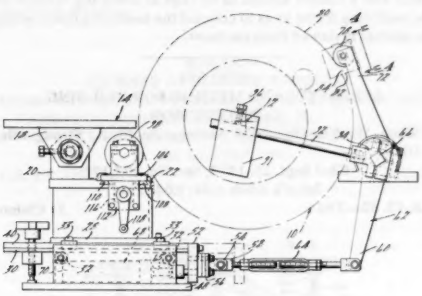
holders are brought into contact with a wetted surface polishing element disposed on a rotating spindle with additional polishing solution being applied to the wetted surface as the holder is rocked to alternate angular positions of contact with respect to said spindle for exposing further areas of the lenses to polishing action and wherein nozzles of a distributor manifold are mounted for movement with a rocking mechanism to keep the nozzles in operative position for polishing solution application at all reciprocal positions for said holders. A splash tray is disposed about the spindles and connected to a sump whereby the polishing solution is collected for intermixture and recirculation by a pump disposed in the sump and having its pressure side connected to said manifold.

3,782,046

TOOL REST FOR GRINDING WHEEL WITH AUTOMATIC WEAR COMPENSATION

Sanford Schaap, Southfield, and Borys Zura, Sterling Heights, both of Mich., assignors to Ford Motor Company, Dearborn, Mich.

Filed Feb. 2, 1972, Ser. No. 222,859
Int. Cl. B24b *41/06*
U.S. Cl. 51—238 R **6 Claims**



A movable tool rest for a grinder having a grinding wheel and a tool platform mounted adjacent the periphery of the grinding wheel wherein provision is made for adjusting automatically the position of the platform with respect to the periphery of the wheel as the wheel decreases in diameter due to wear.

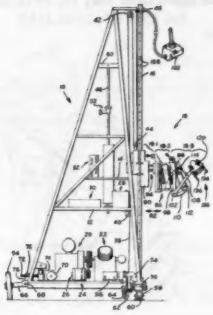
3,782,047

APPARATUS FOR POSITIONING BRICKS

Andries Johannes Stoltz, Pretoria, Transvaal, South Africa, assignor to Monres (Proprietary) Limited, Johannesburg, South Africa

Filed Sept. 8, 1971, Ser. No. 178,705
Claims priority, application South Africa, Sept. 17, 1970, 6354; Aug. 11, 1971, 5359
Int. Cl. E04g *21/22*
U.S. Cl. 52—749 **11 Claims**

A building method is disclosed in which bricks are roughly positioned on a layer of mortar and are then, a number at a time, aligned and pressed into the mortar by a horizontally elongated member which is vibrated. One machine disclosed includes a head structure mounted on a rig and displaceable vertically, fore and aft and laterally. The head includes a clamping structure having brick-gripping fingers on each side of said member and pneumatic actuators for operating the fingers. The clamping structure is capable of swinging in an arc about a horizontal axis. The rig includes a system for automatically returning said rig to an upright position. Another



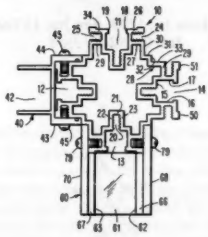
disclosed machine has a plate which has a vertical surface against which the bricks are laid before being pressed into the mortar.

3,782,048

LONGITUDINAL SUPPORT POST

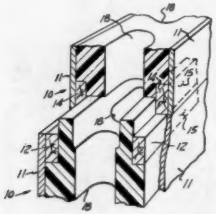
Daniel L. Corman, 1829 Fielden Dr., Lexington, Ky.

Filed Apr. 7, 1972, Ser. No. 242,016
Int. Cl. E04c *3/32*
U.S. Cl. 52—738 **8 Claims**



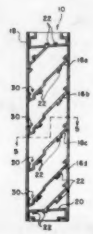
An extruded aluminum support post has a unique configuration to enable various elements to be readily secured thereto for support thereby. One form of the unique configuration has four recesses disposed 90° from each other with a threaded groove in the bottom wall of each recess to form a first set of threaded grooves extending for the length of the post. Each of the side walls of each recess forms a bottom wall of a threaded groove forming a second set of threaded grooves with the two threaded grooves adjacent each recess being disposed perpendicular to the threaded groove forming the bottom wall of the recess and having their mouths open away from the recess. A second form has a circular post with a first set of threaded grooves disposed at a lesser radius from the longitudinal axis of the post than a second set of threaded grooves, which are disposed between each adjacent pair of the first set of the threaded grooves.

3,782,049
WALL FORMING BLOCKS
Melvin H. Sachs, 26765 Fullerton Ave., Detroit, Mich.
Continuation-in-part of Ser. No. 21,981, March 23, 1970, and a continuation-in-part of Ser. No. 732,973, May 29, 1968, abandoned. This application May 19, 1972, Ser. No. 254,953
Int. Cl. E04c *1/10, 2/10*
U.S. Cl. 52—309 7 Claims



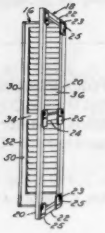
Wall forming blocks made of foamed plastic material, and having vertical openings and upwardly opening channels extending along their upper edges, are formed with pre-formed rigid sheets bonded to their opposite faces, with furring strips secured to the inner faces of the sheets and embedded within the plastic. The blocks are stacked in courses to form a wall, with their vertical openings aligned with and their channels covered by the blocks next above them. Concrete slurry poured into such openings and channels forms a concrete supporting grid within the wall.

3,782,050
LOUVER ASSEMBLY HAVING IMPROVED WEATHERPROOFING AND AIR FLOW CHARACTERISTICS
Joshua R. Dowdell, Dallas, and Paul H. Sanderson, Jr., Lake Dallas, both of Tex., assignors to Dowco Corporation, Dallas, Tex.
Filed June 16, 1971, Ser. No. 153,668
Int. Cl. F24f *13/08*
U.S. Cl. 52—473 5 Claims



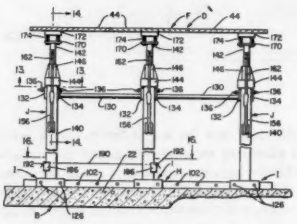
The specification discloses a louver assembly for being mounted in a building and which includes a plurality of louver blades mounted in inclined positions sloping downwardly from back to front. Each of the louver blades includes an elongated open-topped trough having a rhomboidal cross section which extends along the lower edge of the louver blades. Each of the louver blades also includes a vertical rise along the mid-region thereof to allow water to freely drain down the blade into the trough while restraining water from flowing up the blade. A lip portion extends along the upper edge of each of the louver blades to prevent water from flowing over the upper edge of the blades. Apertures are defined at the ends of each of the troughs to allow water to drain therefrom. The louver assembly may be utilized in a conventional rectangular building louver or in a penthouse louver configuration.

3,782,051
WINDOW SHUTTER CONSTRUCTION
Edward G. Quinif, Richmond, Ind., assignor to Walled Lake Door Company, Richmond, Ind.
Filed June 21, 1972, Ser. No. 264,738
Int. Cl. E06b *7/08, 9/00*
U.S. Cl. 52—473 1 Claim



A window shutter construction comprising a mounting frame and a shutter affixed as by clips in overlying relation to the mounting frame so as to conceal the mounting frame when the shutter is viewed from the front.

3,782,052
APPARATUS AND METHOD FOR BUILDING CONSTRUCTION
William W. Vetovitz, 7486 Strongsville Blvd., Strongsville, Ohio
Filed Sept. 25, 1972, Ser. No. 292,171
Int. Cl. E04b *1/04*; E04c *2/06*
U.S. Cl. 52—745 31 Claims

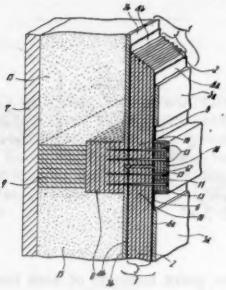


A plurality of modular wall units are constructed on a base area within a temporary shelter removably positioned on the base area. The temporary shelter is then moved from the base area. With the shelter removed from the base area, the wall units are first lifted vertically and moved horizontally for lowering into position on a building foundation.

3,782,053
JOINT CONSTRUCTION FOR LOW TEMPERATURE PURPOSE LIQUID-TIGHT PANELS
Kenji Nakano; Ichizo Okano; Ryuzo Teramoto, and Koji Hayakawa, all of Osaka, Japan, assignors to Hitachi Shipbuilding and Engineering Company Ltd., Osaka, Japan
Filed July 6, 1972, Ser. No. 269,447
Claims priority, application Japan, July 9, 1971, 46/50831; July 9, 1971, 46/50832
Int. Cl. F16b *5/00*
U.S. Cl. 52/753 J 3 Claims

A construction for a liquid-tight joint between adjacent edges of panels forming the inner wall of a low temperature

liquid storage tank, each being of multi-layer construction and having a liquid-tight membrane as an interior layer. A patch member covers the adjacent edge portions of a pair of panels at the joint and is secured to the panels and to a supporting



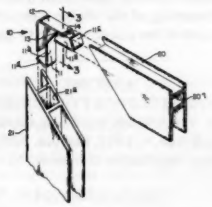
joist. Each panel is relieved to expose a portion of the surface of the liquid-tight membrane adjacent each side of the patch member, and a low temperature resistant adhesive is applied to the joint area, covering the exposed membrane surfaces and the patch member.

3,782,054

CORNER ANGLE FOR WINDOWS

Lorane G. Goss, Jr., Mechanicsburg, Pa., assignor to Capitol Products Corporation, Mechanicsburg, Pa.

Filed Sept. 15, 1971, Ser. No. 181,108
Int. Cl. F16d *7/04*
U.S. Cl. 52/758 H **3 Claims**



A one-piece, drive-in, spring steel corner or clip for joining mitered joint window frames.

3,782,055

EXPANSION JOINT ASSEMBLY FOR CEILING GRID SYSTEM

William H. Spencer, La Canada; John O. Dorius, Hacienda Heights, both of Calif., and James D. Brown, Grants Pass, Oreg., assignors to Trend Ceilings Systems Co., Los Angeles, Calif.

Filed Jan. 27, 1972, Ser. No. 221,142
Int. Cl. E04c *2/42*; **E04b** *1/68*
U.S. Cl. 52—758 D **16 Claims**

An expansion joint assembly for the grid system of a suspended ceiling subject to severe expansion and contraction forces caused by temperature changes. The aligned ends of main grid members are joined together by a one piece expansion joint control member having provision for limited lost motion and including tangs designed for limited deflection in response to either expansion or contraction of the grid members. By this technique stresses acting lengthwise of the main grid members are distributed from end to end of the grid members in any row, the tangs flexing if necessary to absorb and

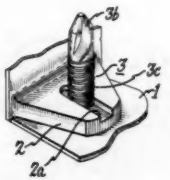
accommodate further expansion or contraction. The control member of the joint assembly also includes tabs having multiple functions including holding a grid joint assembled and limiting expansion and contraction as well as excessive flexing of the tangs.

3,782,056

JOINT STRUCTURE

Mitchell M. Osteen, Zirconia, N.C., assignor to General Electric Company

Filed Apr. 27, 1972, Ser. No. 247,959
Int. Cl. F16b *5/00*
U.S. Cl. 52/758 F **6 Claims**



Joint formed by superposed members fastened together by a self-drilling, self-tapping screw is provided with a recess in the surface of the member where the screw exits. The recess provides space for receiving the shavings produced by the drill end of the screw while the portion of the joint member adjacent the recess is threadably engaged by the self-tapping portion of the screw to provide increased holding strength for the screw.

3,782,057

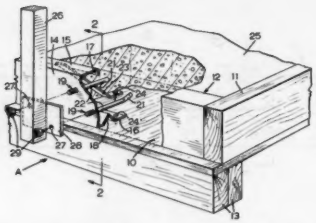
DECKING STRUCTURE WITH GUARD RAIL SUPPORT

Rudolph Leonard Gross, 20 Valencia Crescent, Toronto, Ontario, Canada

Filed July 12, 1971, Ser. No. 161,702
Int. Cl. E04c *5/18*; **E04b** *1/38*
U.S. Cl. 52—27 **11 Claims**

In a balcony structure in which the front edge portion of a concrete body is clad with a channel-shaped metal frame, metal securement rods are disposed through the frame and are welded thereto with one end portion of each rod being embedded in the concrete body and a further end portion of each rod projecting from the frame and disposed outwardly of the concrete body. The rods are disposed with a predetermined spacing therebetween which spacing is identical to the spacing between apertures provided in upright members of a guard railing, the further end portions of the rods being disposed

through these apertures and having nuts screw-threadedly mounted therein whereby securely to connect the guard rail-



ing to the rods. The lower limb portion of the frame has a portion which is of inverted V-shape in cross-section and which extends substantially longitudinally relative to the frame.

3,782,058

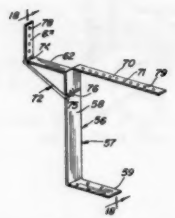
TYING DEVICES FOR TYING WOODEN MEMBERS TO COMPOSITE BRICK AND MASONRY WALLS

George E. Allen, Dolton, Ill., assignor to Allen Anchor Corporation, Dolton, Ill.

Filed Jan. 17, 1972, Ser. No. 218,294

Int. Cl. E04b *1/38*; **E04h** *12/00*

U.S. Cl. 52—300 **7 Claims**



A tying device for tying a wooden board or so-called "-plate," to the uppermost tier of face bricks and a composite face brick and concrete block or like composite wall construction. In the preferred embodiment of the invention the tying device is formed in its entirety, as by stamping, from a relatively thin sheet of flat metal stock, such as thin sheet metal or aluminum, without the need or necessity for any welds, rivets, or attachments, and is designed to be installed at any desired point laterally between the inside faces and the outside faces of the concrete or like masonry blocks, and to lie between the butt joints of the concrete or like masonry blocks and does not require installation at the butt joints, and does not require the use of any diagonally extending or like brace member. A first modified form of the tying device is likewise formed, as by stamping, from a single sheet of flat relatively thin metal stock, without the need for any welds, rivets, or attachments, or any diagonally extending or like brace member, and may be positioned at any selected point along the face brick between the butt joints or at the butt joints between the face bricks. A second modified form of construction is similar to the first modification but employs a brace member which is formed separately from the body of the tying device but is adapted to be mounted thereon in use.

3,782,059

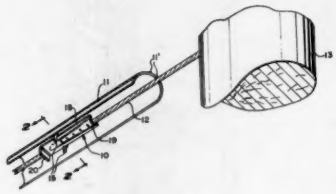
GUY-WIRE GUARD FASTENERS

Robert H. Reed, Rockford, Ill., assignor to Redmon Products Co., Sterling, Ill.

Filed July 26, 1972, Ser. No. 275,242

Int. Cl. E04h *12/20*

U.S. Cl. 52—147 **15 Claims**



The guy-wire guard fasteners of both forms involve the wedging action of a semi-conical shaped portion of a wedge plate against one side of the guy-wire by driving the wedge plate endwise in one direction while the parallel lateral edge portions of the wedge plate that are in a plane oppositely inclined relative to the semi-conical portion of the plate slide in grooves provided therefor in the two legs of an inverted U-shaped fastener bolt or element, these legs extending through holes in the middle portion of the guard on opposite sides of the guy-wire so that the guy-wire is clamped firmly against the inside of the guard by the wedge plate.

In the other form of fastener in which downwardly bent tapered flanges define the parallel side edge portions of the wedge plate and these flanges are slit vertically at regularly spaced intervals so that lugs can be bent outwardly from the flanges on opposite sides of the legs of the U-shaped fastener element in which grooves are defined for sliding engagement of the flanges in the endwise movement of the wedge plate to wedged position, the outwardly bent lugs positively lock the wedge plate against endwise movement from wedged position. This prevents loosening of the wedge plate in the event of any endwise movement of the guard relative to the guy-wire.

3,782,060

BEARING FOR SUPPORT OF ROOFING TILES

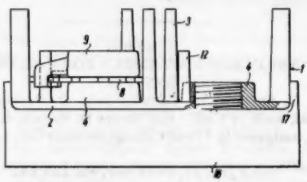
Klaus Gobel, 55, Trier-Trach, am Forst, Germany

Filed Nov. 9, 1972, Ser. No. 305,157

Claims priority, application Germany, Nov. 22, 1971, P 21 57 750.4

Int. Cl. E04b *1/35*

U.S. Cl. 52—126 **7 Claims**



A bearing for supporting a roofing tile comprises a base plate which is bushed to receive one end of one or more threaded members. The threaded members comprise bolts with threaded portions of opposite pitch carrying a toothed wheel between the threaded portions. The other end of each threaded member is received in a support plate which is

received in a recess in a roofing slab. Each support plate has a fork on one side the lugs of which extends below the base of the support plate. Spacing pins on the base plate separate the roofing slabs and a locking pin on the base plate can be used to turn the toothed wheels and thus tighten or slacken the bolts.

3,782,061

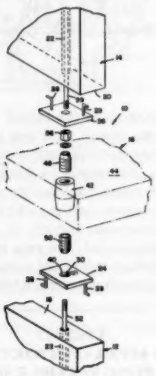
CONCRETE BUILDING CONSTRUCTION WITH IMPROVED POST TENSIONING MEANS

Andrea J. Minutoli, 1624 Merritt Dr., Novato, Calif., and Reginald A. J. Locke, 915 Douglass St., San Francisco, Calif.

Filed Mar. 23, 1972, Ser. No. 237,420

Int. Cl. E04b *1/41*; **E04g** *21/12*

U.S. Cl. 52—125 **11 Claims**



A building assembly having aligned first panels and a second panel between each pair of adjacent first panels with the first panels having aligned, rod-receiving conduits and the second panels having sleeves aligned with the conduits so that reinforcing rods can extend through the assembly of the first and second panels. Each sleeve has means for guiding reinforcing rods therethrough and a nut is received within the guide means for interconnecting the proximal ends of a pair of adjacent reinforcing rods. Each conduit is wide enough to receive a rod-connecting nut and the string of reinforcing rods are tensioned at the upper end of the building assembly, whereby uniform stress is applied to the first and second panels and thereby to the overall building assembly.

3,782,062

MODULAR ASSEMBLY FOR ATTACHING SKIRT FACADE TO AN AIR HANDLING UNIT

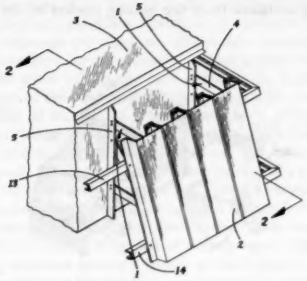
Walter E. Woods, and Paul E. Hammann, both of Bettendorf, Iowa, assignors to American Air Filter Company, Inc., Louisville, Ky.

Filed July 14, 1972, Ser. No. 272,079

Int. Cl. E04f *10/08*

U.S. Cl. 52—75 **1 Claim**

A modular assembly for supporting a skirt facade and attaching same to an air handling unit, the assembly being adapted to be cantilevered from a wall support at one end projecting therefrom and engaging with a skirt facade in a preselected angular relationship at the other end.



3,782,063

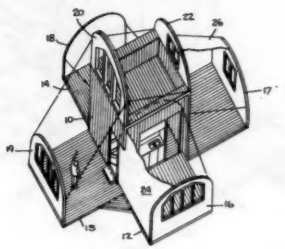
EXPANDABLE PREFABRICATED BUILDING SYSTEM AND METHOD OF CONSTRUCTION

Valeria Batorewicz, and Jerry P. Loving, both of New Haven, Conn., assignors to Housing Systems Corporation, New Haven, Conn.

Filed Aug. 31, 1971, Ser. No. 176,636

Int. Cl. E04b *1/12, 1/347, 1/35*

U.S. Cl. 52—63 **12 Claims**



An expandable prefabricated building system combines a preassembled rigid core unit with auxiliary floor sections and attached self-erecting or inflatable flexible membrane forms for satellite rooms surrounding the core unit.

A preferred method of construction includes the steps of prefabricating a core unit and at least one floor section and flexible membrane form for a satellite room; transporting the prefabricated items to a construction site; erecting the core unit, floor section and flexible form; and applying hardenable plastic material to the flexible form to produce a permanent building.

3,782,064

MOISTURE DEFLECTOR FOR A WALL SYSTEM

S. Eugene Hubbard, 540 Phillips Rd., Niles, Mich., and Lawrence F. Biebuyck, 2500 Interstate 20, Mesquite, Tex.

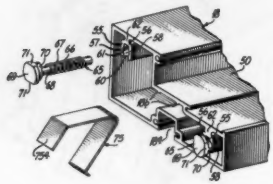
Division of Ser. No. 41,951, June 1, 1970, abandoned. This application Nov. 11, 1971, Ser. No. 197,739

Int. Cl. E04b *7/4, 1/18*

U.S. Cl. 52—97 **3 Claims**

There is provided an improved wall construction including a vertical mullion and a horizontal member. A glazing pocket is

provided in the side face of the vertical mullion and a glazing pocket is provided in the upper surface of the horizontal mullion. A moisture deflector is provided on the horizontal mullion protruding into the glazing pocket of the vertical mullion directing moisture from the glazing pocket of the horizontal



mullion into the glazing pocket of the vertical mullion so that moisture which enters the glazing pocket in the horizontal mullion may be directed downwardly through the glazing pocket of the vertical mullion and thereafter outside of the building.

3,782,065

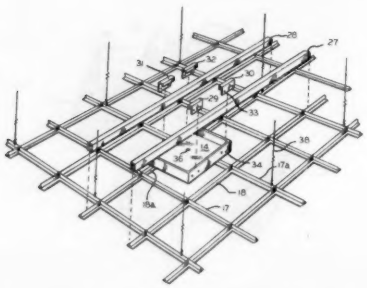
CEILING MOUNTING ARRANGEMENT

Walter Griffing, 208 Lansdale Rd., Prospect Heights, Ill.

Filed Feb. 25, 1972, Ser. No. 229,521

Int. Cl. E04b *5/52*; G09f *7/18*

U.S. Cl. 52—39 **11 Claims**



An arrangement to enable mounting heavy loads, such as large screen television receivers, to suspended ceilings. The arrangement includes a box-like section that replaces a ceiling tile and is supported between the runners of the suspended ceiling. The box-like section is attached to a pair of support bars that bridge a plurality of runners thereby distributing the weight of the load which is suspended from the box-like section.

3,782,066

METHOD OF MAKING AND FILLING AN ASEPTIC PACKING CONTAINER

Roland Schmitt, Forchheim, Germany, assignor to Industriewerke Karlsruke Augsburg Aktiengesellschaft, Karlsruke, Germany

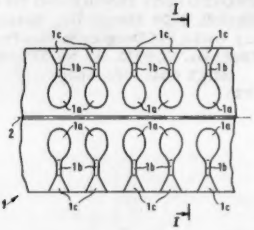
Filed Feb. 18, 1972, Ser. No. 227,577

Claims priority, application Germany, Feb. 25, 1971, P 21 20 274.4

Int. Cl. B65b *61/00*

U.S. Cl. 53—14 **10 Claims**

A method for the production of aseptic packings, particularly a single use packing such as an ampoule, etc., comprises a plurality of oppositely directed substantially identical indentations on a foil on each side of a fold line. Thereafter, the foil material is folded along the fold line to align the indentations so that they form half portions of individual containers. The foil sections are welded or otherwise sealed together so that they close the container around the juncture line. Each container indentation includes a neck portion terminating in an outwardly widening funnel opening adjacent the edge of the foil material. The individual containers are then filled through the funnel and the neck portion is thereafter sealed



directly below the bottom of the funnel by pressure welding. The area adjacent the closed weld line is provided with tear lines to facilitate easy opening and removal of the contents from the containers. An aseptic packing comprises a strip of two superposed foil sheets, each having aligned recessed portions forming container halves which together form a complete closed container which is closed around the periphery by the foil material. The strip includes tear line portions for both separating individual containers from the strip and for opening the mouth of each container.

3,782,067

METHOD AND APPARATUS FOR CONTINUOUSLY WRAPPING FLEXIBLE SHEETS

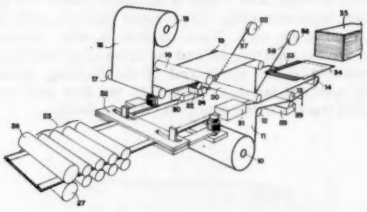
Albert Emiel Smolderen, Aartselaar, Belgium, assignor to Agfa-Gevaert N.V., Mortsel, Belgium

Filed Aug. 25, 1971, Ser. No. 174,807

Claims priority, application Great Britain, Aug. 26, 1970, 41,126/70

Int. Cl. B65b *9/02*

U.S. Cl. 53—28 **12 Claims**



In a wrapped film package, particularly sheets of X-ray film, produced by the method of USP 3,411,263 in which the margins of one web of wrapping material are folded inwardly over the edge margins of a narrower web of wrapping paper with the film sheets sandwiched in between at spaced intervals, the contacting web portions are adhered together and the webs are sealed along lines between adjacent sheets and cut to produce individually wrapped film sheets, the inherent tendency of the folded over web marginal portions to unfold and

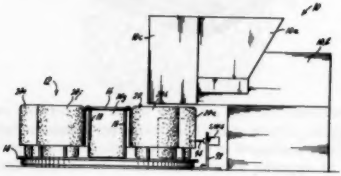
draw air into the partially wrapped package is overcome by mechanically creasing the folded web edge to set the web in its folded condition and overcome the natural resiliency of the web. Preferably, each web fold edge is creased along two closely spaced parallel lines spaced apart approximately the thickness of the wrapped film sheet so as to impart to the folded edge a generally square cornered configuration.

3,782,068

CAROUSEL FOR SOLID WASTE COMPACTOR

Stanley J. Woyden, Stamford, Conn., and Maurice E. Aaron, Bound Brook, N.J., assignors to Resources Control Corporation, Middlesex, N.J.

Filed Feb. 29, 1972, Ser. No. 230,271
Int. Cl. B65b *57/02*
U.S. Cl. 53—64 **6 Claims**



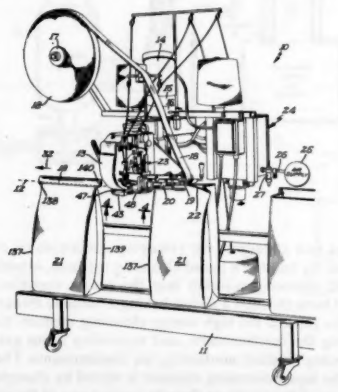
A carousel for handling compacted refuse in a refuse compactor system includes a circular turntable adapted carrying a selected number of refuse receptacles and a drive mechanism for indexing the turntable in coordination with the compactor ejection cycle. The carousel is designed to insure that each receptacle receives one and only one refuse slug and that no slug is ejected unless an empty receptacle is properly positioned beneath the compactor ejection port. The system is adapted to accommodate turntables of different sizes carrying different numbers of receptacles so that it may be used in installations handling different daily volumes.

3,782,069

BAG CLOSING MACHINE WITH FLUIDIC CONTROL SYSTEM

I. George Fischbein, Minneapolis; Harold Fischbein, Edina, and Sam Shark, Minneapolis, all of Minn., assignors to Dave Fischbein Manufacturing Co., Minneapolis, Minn.

Filed Nov. 12, 1971, Ser. No. 198,167
Int. Cl. B65b *57/02, 61/06*
U.S. Cl. 53—67 **10 Claims**



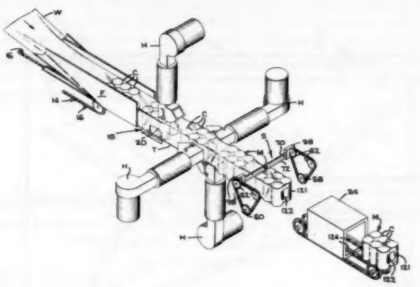
An automatic bag closing machine for bags moving along a path wherein tape is folded over and along the open ends of successively arriving bags and then stitched to the bags to close them and the tape clipped adjacent leading and trailing edges of each bag. A fluidic control system with fluidic bag detection apparatus, including sensors located at spaced intervals along the path of the bags, actuates a sewing head when a bag is detected and continues sewing head operation until the bag passes through the machine. The fluidic control system also actuates a tape clipper assembly including a moving knife, swinging the knife to clip the tape adjacent the leading and trailing edges of the bag, the tape clipper assembly further including a pair of alternating pistons operatively connected to the knife to swing it across the path and return, a first piston being actuated by the control system when the detection apparatus signals the control system that the bag is a predetermined distance upstream from the knife, and a second piston being actuated to again swing and return the knife when the bag is a predetermined distance downstream of the knife. The invention also includes a method of closing taped bags with a bag closing machine having a fluidic control system wherein bags passing through the machine are detected by a fluidic bag detection apparatus.

3,782,070

MACHINE FOR OVERWRAPPING MULTIPLE CONTAINERS

Howard W. Erlandson, Green Bay, Wis., assignor to FMC Corporation, San Jose, Calif.

Filed Aug. 4, 1971, Ser. No. 168,927
Int. Cl. B65b *53/02*
U.S. Cl. 53—184 **4 Claims**



A plurality of rigid containers or articles are grouped into a unit for overwrapping in thermoplastic, heat shrinkable film. The unit is inserted in a moving tube of the film which is subsequently rendered taut by directing streams of heated air on the film. As a result, the film tightens around the groups of articles and those portions of the tube at each end of the articles become constricted or necked down to retain the articles against longitudinal movement relative to the film tube. While still moving, each group of articles then encounters an orbiting hot wire for perpendicularly severing the tube at its constricted portion. After the severing of the tube, the overwrapped articles pass through a heat tunnel which further shrinks the film so that the film beomes tightly stretched and all portions thereof, including the severed free ends, closely conform to the overall shape of each group of articles.

3,782,071

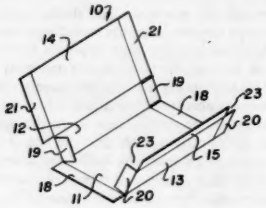
SIMULTANEOUS CARTON FORMER AND LOADER

Hans Hagedorn, 947 Huntington Cres., North Vancouver, British Columbia, Canada

Filed June 1, 1971, Ser. No. 148,540
Int. Cl. B65b *41/06, 43/10, 47/06*
U.S. Cl. 53—191 **26 Claims**

Apparatus for directing a single or double tier load of containers onto a flat carton blank, folding the blank around the

load, and securing end flaps in position to complete the loading and forming of the carton. A blank is partly formed as it is drawn into position to receive the load, and after the load has



been received, the forming operation continues with the various elements of the carton being secured in position during this operation.

3,782,072

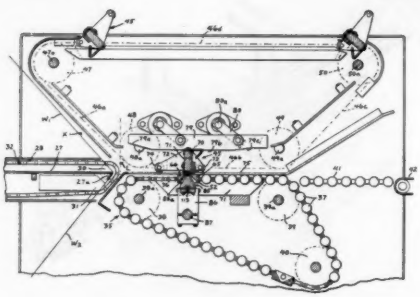
APPARATUS FOR WRAPPING ARTICLES

Robert P. Sorensen, and Leo Strombeck, both of Rockford, Ill., assignors to Anderson Bros. Mfg. Co., Rockford, Ill.

Filed Aug. 31, 1972, Ser. No. 285,491

Int. Cl. B65b *11/08, 9/02*

U.S. Cl. 53—229 **14 Claims**



An apparatus for wrapping articles of the type wherein articles are advanced along an article path into a curtain of heat sealable wrapping material, and upper and lower jaw assemblies are sequentially moved laterally of the article path into positions at the trail side of the article to clamp overlapping portions of the web therebetween, and then forwardly along the article path in a sealing run. The lower jaw assemblies each include a pair of spaced clamping jaw members having a jaw opening therebetween, and a rotary heat sealing and cutting member is mounted for movement into and out of the jaw opening as the jaw assemblies move past a zone intermediate the ends of the sealing run, to sever and seal overlapping portions of the webs.

3,782,073

BAG HOLDER AND OPENING DEVICE

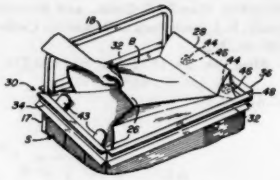
Malcolm E. Musser, P.O. 386, Jackson Center, Ohio

Filed Aug. 19, 1971, Ser. No. 173,063

Int. Cl. B65b *43/26*

U.S. Cl. 53—384 **10 Claims**

A stack of collapsed or folded paper bags is placed on a horizontal platform supported by a tubular base frame having an upwardly projecting portion for guiding a rectangular vertically movable bag retaining frame. In one embodiment, the bag retaining frame supports on one end inwardly projecting curved tabs which rest on the uppermost bag in the stack. On its other end, the frame supports cylindrical members which frictionally grip and restrain the folded bottom edge portion of the uppermost bag as the top portion of the bag is pulled upwardly from the tabs, thereay causing the bag to unfold to an



open condition. The bag retaining frame is reversible on the vertical guide portion of the base frame for accommodating a stack of bags packaged in groups with their bottom portions arranged at opposite ends of the stack. In another embodiment, the bag retaining frame supports an L-shaped arm which carries the frictional gripping members and is pivotable to locate the gripping members at either end of the frame where the arm is retained by a catch member.

3,782,074

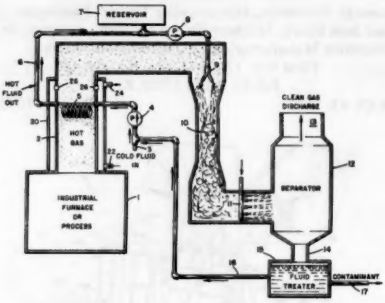
PROCESS AND APPARATUS FOR CLEANSING AND PUMPING CONTAMINATED INDUSTRIAL GASES USING A NOZZLE HAVING A VARIABLE THROAT AREA

Hugh Emory Gardenier, Tullahoma, Tenn., assignor to Aronetics, Inc., Tullahoma, Tenn.

Filed July 21, 1972, Ser. No. 273,873

Int. Cl. B01d *47/10*

U.S. Cl. 55—19 **31 Claims**

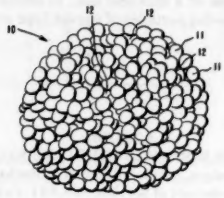


Process and apparatus for removing contaminants from a gas stream by heating a liquid cleansing medium, introducing the liquid cleansing medium into the gas in vaporized and atomized form through a nozzle having a variable throat area, mixing the gas and the high energy cleansing medium thereby entrapping the contaminants, and separating clean gas from the cleansing medium containing the contaminants. The flow rate of the liquid cleansing medium is varied by changing the throat area of the nozzle to thereby control one of the process variables such as the temperature of the liquid.

3,782,075
COMPLETELY POROUS MICROSPHERES FOR CHROMATOGRAPHIC USES

Joseph J. Kirkland, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

Filed Apr. 7, 1972, Ser. No. 242,038
Int. Cl. B01d *15/08*
U.S. Cl. 55—67 16 Claims

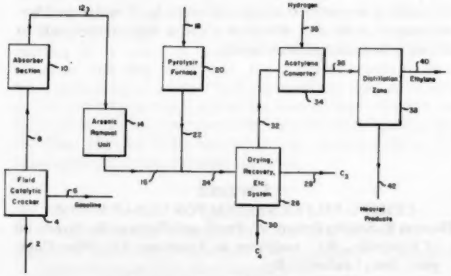


This invention relates to an improved packing material for chromatographic columns, prepared from a powder of uniform-sized porous microspheres composed of a plurality of interconnected colloidal oxide particles.

3,782,076
PROCESS FOR REDUCING THE ARSENIC CONTENT OF GASEOUS HYDROCARBON STREAMS BY USE OF SUPPORTED LEAD OXIDE

Norman L. Carr, The Hague, Netherlands; Franklin E. Massoth, Middlesex Township, Butler County, Pa.; Donald L. Stahlfeld, Glenshaw, Pa., and John E. Young, Jr., Middlesex Township, Butler County, Pa., assignors to Gulf Research & Development Company, Pittsburgh, Pa.

Filed Apr. 27, 1972, Ser. No. 247,983
Int. Cl. B01d *53/04*
U.S. Cl. 55—74 18 Claims

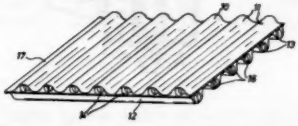


A process for reducing the arsenic content of a gaseous hydrocarbon stream by contacting the stream with a sorbent comprising an oxide of lead dispersed upon a supporting material.

3,782,077
DIFFUSION CELL

Ralph George Hollister, and Denis Arthur Stiles, both of London, England, assignors to Johnson, Matthey & Co. Limited, London, England

Filed Mar. 20, 1972, Ser. No. 236,397
Claims priority, application Great Britain, Mar. 23, 1971, 7,566/71
Int. Cl. B01d *53/22*
U.S. Cl. 55—158 6 Claims

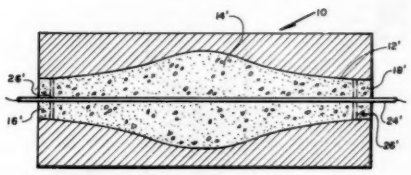


This specification describes a hydrogen diffusion unit for separating mixtures from gaseous mixtures containing hydrogen. The unit comprises two superimposed metal foils bonded together at their edges to form an envelope and at least one of the foils is corrugated or undulated and each corrugation or insulation is supported by a helix of stainless steel or like wire adapted to prevent collapse of the unit when subject to high external pressures in use.

3,782,078
APPARATUS FOR CHROMATOGRAPHIC SEPARATIONS

James H. Jerpe, 7120 Edgerton Ave., Pittsburgh, Pa.

Filed Feb. 14, 1972, Ser. No. 225,948
Int. Cl. B01d *15/08*
U.S. Cl. 55—197 23 Claims



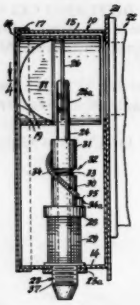
The subject chromatographic column employs certain excitation means to alter the sorption of a sample passing through a sorbent contained within the column to better effect separation of the various components of the sample. These excitation means include a geometric curvature of the central cavity of the column, or a voltage gradient established within the cavity between the column wall which defines the cavity and an electrically isolated wire extending along the longitudinal axis of the cavity, or a combination of the two. The columns can be housed in series within composite blocks and these blocks can be stacked to permit columns of substantial length within a confined space.

3,782,079

SPIT BACK WATER, OIL AND FUEL RE-CYCLE

Leo A. Heintzelman, 4990 Burlingame S.W., Wyoming, Mich.

Filed July 6, 1971, Ser. No. 159,980
Int. Cl. F02m 35/00
U.S. Cl. 55—218 3 Claims



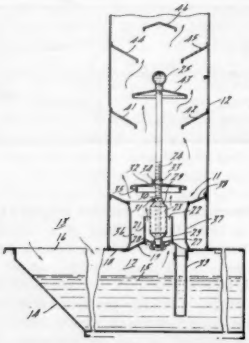
The present invention relates primarily to a spit back water, oil and fuel re-cycle for internal combustion engines. The device forming the embodiment of this invention preferably may consist of a rectangular valve housing mounting an automatically operable spit back needle valve and an exhaust pipe. The needle valve in question has a vertical shaft which may be provided with a flipper plate. The latter can be swivelled by means of the action of the air entering the housing and being directed against a stationary baffle plate. The flipper plate with its spit back needle valve is automatically closed and opened. The aforesaid action exhausting the residue of oil in the housing and delivering it back to the engine.

3,782,080

AIR WASHER

Edward F. Gallagher, Union Lake, Mich., assignor to Gallagher-Kaiser Corporation, Detroit, Mich.

Filed Apr. 11, 1972, Ser. No. 242,933
Int. Cl. B01d 47/00
U.S. Cl. 55—226 13 Claims



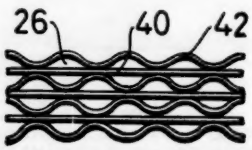
An air washer for removing relatively small particles from the air. An annular passage is disposed within the lower end of a plenum chamber or eliminator which is mounted above a collection trough. The passage has a water pipe descending therethrough, the water impacting a deflector which sprays the water across the mouth of the passage. An enlargement is removably mounted on the pipe to decrease the size of the passage. Air is drawn upwardly through the passage, the velocity increasing due to the narrow size, and the water is broken up into small droplets which surround the particles. An impact plate immediately above the narrow passage returns the water-enveloped particles to an annular catch basin which surrounds the narrow passage. A return pipe leads from this basin to the trough. The enlargement may be replaced with one of a different size, to obtain the optimum velocity for removing particles of a given type or size.

3,782,081

PACKING OR BODY FOR MOISTURE EXCHANGER

Carl George Munters, Danderydsvagen 3, Stocksund, Sweden

Continuation-in-part of Ser. No. 505,501, Oct. 28, 1965, abandoned, which is a division of Ser. No. 164,880, Jan. 8, 1962, Pat. No. 3,231,409. This application Feb. 11, 1970, Ser. No. 10,610
Int. Cl. B01d 46/60
U.S. Cl. 55—278 5 Claims



A packing element for heat and moisture exchange assembled of thin corrugated sheets of asbestos fiber, the corrugations serving to form cells and separate the cells one from the next, whereby air can be passed from one side of the packing to the other for modification of either its heat or moisture content, the asbestos fibers of the packing being first treated with an organic binder for temporary stability in assembling the thin corrugated sheets into a green packing element, further impregnated with inorganic binder and moisture absorptive substance to provide structural stability and moisture absorbency after the organic binder has been burned out, so that the packing assembly is composed entirely of inorganic fiber and binder substance which may be a hygroscopic salt to enhance the moisture absorbency.

3,782,082

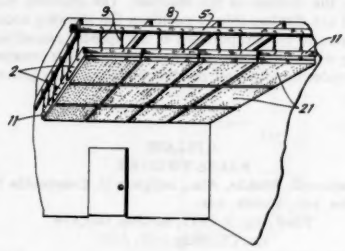
CEILING FILTER SYSTEM FOR CLEAN ROOM

Thomas R. Smith; Robert W. Pond, and Richard D. Rivers, all of Louisville, Ky., assignors to American Air Filter Company, Inc., Louisville, Ky.

Filed Nov. 8, 1971, Ser. No. 196,555
Int. Cl. B01d 31/00
U.S. Cl. 55—494 7 Claims

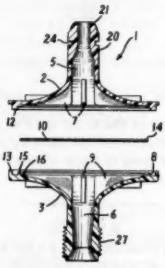
An air filtering ceiling system having a plurality of flow-through filtering ceiling panels, each panel being adapted for

fluid tight communication with adjacent ceiling panels wherein all of the air entering a plenum enters through the



panels, the individual panels being further adapted to be snapped in and out of a ceiling panel support structure.

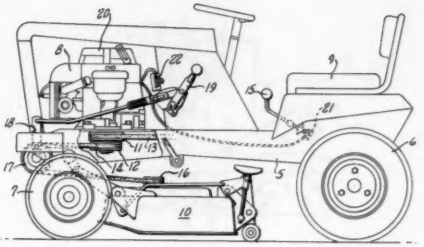
3,782,083
DISPOSABLE GAS FILTER
David J. Rosenberg, Glen Cove, N.Y., assignor to Pall Corporation, Glen Cove, N.Y.
Filed Sept. 16, 1971, Ser. No. 181,123
Int. Cl. B01d *39/08*
U.S. Cl. 55—491 **9 Claims**



A disposable filter is provided that is especially suited for filtering gases, and for manufacture in a small size, comprising a housing in at least two portions defining therewith a fluid chamber with two fluid ports, and a filter element in sheet form extending across the fluid chamber and held at its sides to one housing portion across the line of flow between the fluid ports, the housing portions being bonded together and the filter element being bonded to one housing portion in a fluid-tight and microorganism-tight seal.

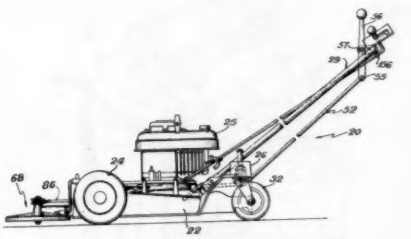
3,782,084
SAFE START SYSTEM FOR RIDING MOWERS
Joseph R. Harkness, Germantown, Wis., assignor to Briggs & Stratton Corporation, Wauwatosa, Wis.
Filed Nov. 1, 1972, Ser. No. 302,871
Int. Cl. A01d *75/18*
U.S. Cl. 56—10.5 **2 Claims**

A safe start interlock between the ignition system of the engine of a riding mower prevents starting of the engine while either the transmission through which the engine drives the traction wheels or the clutch connecting the engine with the mower is "in gear," wherein a centrifugally responsive switch with considerable inherent hysteresis is built into the engine to



keep the engine ignition system grounded until a relatively high engine speed is reached, and upon being opened to disrupt the grounding circuit, remains open despite a substantial reduction in engine speed.

3,782,085
LAWN MOWER AND AUXILIARY UNIT WITH CONTROL MEANS
James M. Parker, Ellsworth, Kans., and Carl N. Rydin, Naperville, Ill., assignors to Parkton Corporation, Ellsworth, Kans.
Continuation-in-part of Ser. No. 79,783, Oct. 12, 1970, abandoned. This application Jan. 17, 1972, Ser. No. 218,150
Int. Cl. A01d *69/08*
U.S. Cl. 56—11.6 **9 Claims**



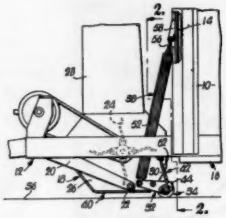
A rotary lawn mower including an engine, an edger-trimmer unit mounted on the mower and driven by the engine, power control means for engaging and disengaging the drive to the unit, and position control means for moving the unit between its edging and trimming positions. Coordinating means interrelates the power control means and the position control means to insure that the drive is always disengaged before the position control means can move the unit. Caster wheels are provided on the mower opposite the unit for ease of maneuvering and height control means engageable with the caster wheels raise and lower the mower to respectively lower and raise the unit.

3,782,086

SPRING-LOADED GAUGE ROLLER

John Dale Anderson, Canton, Kans., assignor to Hesston Corporation, Hesston, Kans.

Filed Apr. 9, 1973, Ser. No. 349,078
Int. Cl. A01d *89/00*
U.S. Cl. 56—344 **10 Claims**



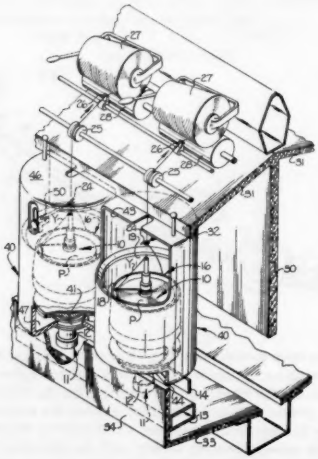
A crop pickup component of a farm implement is floatingly supported by a four point linkage and associated springs that are, in turn, coupled with a swingable gauge roller in such manner as to yieldably bias the latter toward the ground so that shocks are absorbed as the roller follows the ground contours while the crop is being gathered and loaded.

3,782,087

SOUND REDUCING HOUSINGS IN TEXTILE YARN PROCESSING MACHINES

Gustav Franzen, Dusseldorf, and Klaus Nimtz, Krefeld, both of Germany, assignors to Palitex Project Company-GmbH, Krefeld, Germany

Filed June 19, 1972, Ser. No. 264,132
Claims priority, application Germany, June 21, 1971, P 21 30 621.8
Int. Cl. D01h *1/00*; **G10k** *11/04*
U.S. Cl. 57—1 R **28 Claims**



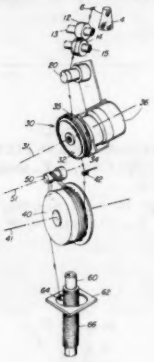
Sound reducing housings in twisters, spinning frames or the like having a plurality of spindle assemblies. The sound reducing housings reduce undesirable sound produced in the machine and are characterized by providing access to the spindle assemblies for servicing while also reducing sound during such servicing. The sound reducing housings include stationary housing elements and movable housing elements mounted on the machine for cooperating with each other for at least partially encapsulating the spindle assemblies and for shielding the interior of the machine. The movable housing elements are displaceable to positions for allowing access by an operator to certain portions of the spindle assemblies for servicing while the stationary housing elements continue to reduce undesirable sound produced by the yarn processing machine.

3,782,088

FALSE TWISTER

David Bakewell, Mobile, Ala., assignor to Courtaulds North America, Inc., Mobile, Ala.

Filed Aug. 5, 1971, Ser. No. 169,175
Int. Cl. D02g *1/02, 1/08*
U.S. Cl. 57—34 HS **9 Claims**



Yarn under tension in the draw span of a drawing machine is false twisted by rotation of the yarn by frictionally contacting the yarn with the rims of each of two rotating discs canted with respect to the yarn path.

3,782,089

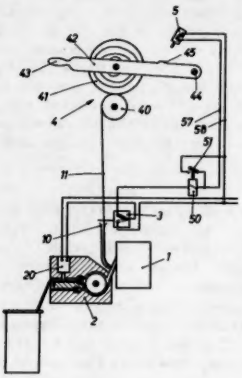
APPARATUS FOR PIECING-UP YARN IN AN OPEN-END-SPINNING DEVICE

Hans Landwehrkamp, Gerolfing, and Gerhard Hoeber, Ingolstadt, both of Germany, assignors to Schubert & Salzer Maschinenfabrik Aktiengesellschaft, Ingolstadt, Germany

Filed Nov. 18, 1971, Ser. No. 200,125
Claims priority, application Germany, Nov. 28, 1970, P 20 58 603.2
Int. Cl. D01h *15/00, 13/18*
U.S. Cl. 57—34 R **11 Claims**

A momentary contact switch connected in parallel with a yarn tension monitoring switch is actuated by swinging of the bobbin holder beyond a normal servicing position immediately prior to swinging such holder into working position. Such switch overrides the yarn-monitoring switch to effect fiber feed to the yarn formation zone earlier than such feed would normally be effected by the yarn-monitoring switch since the latter switch is not actuated until the yarn tension is increased to normal spinning tension. A holding switch is actuated by the momentary contact switch to maintain the overriding function between the time the momentary contact switch is released by the bobbin holder being swung out of contact and the time the yarn-monitoring switch is reversed. Alternatively, a Bowden wire connecting the bobbin holder and the yarn-

monitoring switch reverses such switch to begin fiber feed. Other overriding switch constructions include a button on the bobbin holder manually operable to release the bobbin holder from a latched servicing position and simultaneously to actuate the overriding switch, a swingable switch lever moved into and out of switch-actuating contact with a leaf spring contact as a cam slides past it on opposite passes of the swinging bobbin holder, or a ratchet-and-pawl latch for the bobbin holder in which the pawl constitutes a switch-actuating cam.

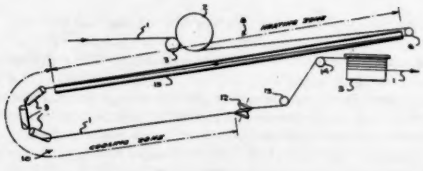


3,782,090

METHOD AND APPARATUS FOR PRODUCING TEXTURED YARN

John J. Edwin, Charlotte, N.C., and J. Milton Lathem, Gainesville, Ga., assignors to Chadbourn, Inc., Charlotte, N.C.

Filed Dec. 8, 1971, Ser. No. 206,031
Int. Cl. D02g *1/04*
U.S. Cl. 57—34 HS **13 Claims**



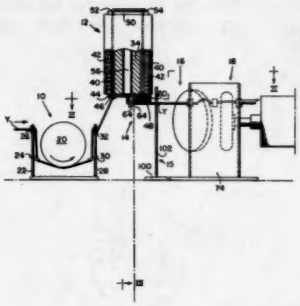
A method for producing textured yarn wherein yarn is drawn through a heating zone, then a cooling zone, and then at least partially around an idler grooved roll which has its axis of rotation at an angle other than a right angle to the direction of yarn travel, and finally delivered from the treatment area. In passing around the grooved roll, the yarn drives the grooved roll and first contacts one side surface of the groove above the bottom, then moves down into the groove bottom, and finally up the opposite side wall before leaving the roll surface. Apparatus is disclosed schematically in the form of a drawtwister, with the drawtwister feed roll serving as the means to feed yarn to the texturing means, and the drawtwister draw roll serving as the means for delivering the yarn from the treatment area.

3,782,091

TEXTURING YARNS BY FALSE TWISTING

Richard C. Spurgeon, R.D. No. 2, Lansdale, Pa.

Filed Feb. 3, 1972, Ser. No. 223,227
Int. Cl. D02g *1/02*; D01h *13/08*; D02g *1/08*
U.S. Cl. 57—34 HS **6 Claims**



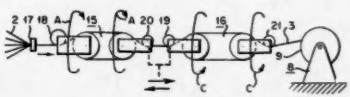
Untextured yarn is drawn from a producer's package, threaded through apparatus comprising a tension leveling device, an electric heater and a false twist device and, having been textured thereby, is wound on yarn take-up means. Close to the yarn exit from the heater is a twist stop device which effectively restricts twisting of the yarn to the downstream side thereof, and close to the downstream side of the false twist device is a check device which effectively restricts to the downstream side thereof the tendency of the yarn to relax due to untwisting thereof.

3,782,092

SZ CABLING DEVICE FOR COMMUNICATION CABLES

Dieter Vogelsberg, Berlin, Germany, assignor to Siemens Aktiengesellschaft, Berlin and Munich, Germany

Filed Jan. 24, 1972, Ser. No. 220,191
Claims priority, application Germany, Jan. 25, 1971, P 21 05 843.5
Int. Cl. H01b *13/04*
U.S. Cl. 57—34 AT **7 Claims**



Cabling device has means for twisting strand elements into respective twisted units having a twist direction which varies from section to section thereof (alternate-reverse twist), and means for simultaneously twisting a plurality of such twisted units into a twisted group also having a twist direction varying from section to section thereof. This two-stage cabling operation is effected by the aid of accumulators. Between the two twisting stages, i.e. the twisted unit-forming means and the twisted group forming means, at least one pulling device is disposed, the pulling device being revolvable about an axis corresponding to the axis of the twist of the twisted units and the twisted group.

3,782,093

APPARATUS FOR WINDING UNDRAWN THREAD MATERIAL ONTO A WASTE YARN TAKE-UP MEMBER OF A DRAW-TWISTING SPINDLE

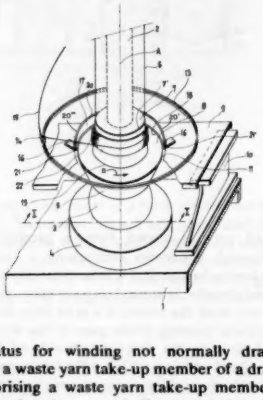
Kurt Angst, Wangi, and Peter Pfyffer, Winterthur, both of Switzerland, assignors to Maschinenfabrik Rieter AG, Winterthur, Switzerland

Filed Nov. 29, 1971, Ser. No. 202,822

Claims priority, application Switzerland, Dec. 1, 1970, 17764/70

Int. Cl. D01h *1/38*

U.S. Cl. 57—34.5 **16 Claims**



An apparatus for winding not normally drawn thread material onto a waste yarn take-up member of a draw-twisting spindle comprising a waste yarn take-up member disposed below a tube placed on a spindle. A twisting ring can be lowered into a stationary position with respect to the waste yarn take-up member. A stationary guide member for the thread to be wound onto the waste yarn take-up member is arranged below the upper boundary or upper extent of the waste yarn take-up member. This stationary guide member extends upwardly to a height or location above the base of the waste yarn take-up member and externally thereof along a portion of the circumference of such waste yarn take-up member.

3,782,094

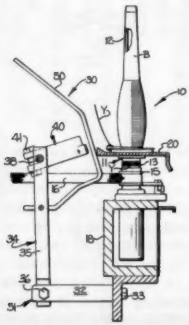
APPARATUS FOR REMOVING WRAPS OF YARN REMAINING ON TEXTILE SPINDLES

Thad T. Flowers, Fort Mill, S.C., assignor to Spring Mills, Inc., Fort Mill, S.C.

Filed May 4, 1972, Ser. No. 250,243

Int. Cl. D01h *1/00*

U.S. Cl. 57—34.5 **3 Claims**



Apparatus for removing the last few wraps of yarn from the lower portion of spindles in a yarn processing machine which are left thereon as a result of doffing full bobbins of yarn. The apparatus comprises blades pivotally mounted for movement toward and away from the lower portion of the spindles in generally a transverse direction with respect to the spindles for assuming an operating position in which the blades are in close proximity to the lower portion of the spindle for removing the wraps during rotation of the spindles in the yarn processing operation and for assuming a non-operation position away from the lower portion of the spindles so that the ring rail mechanism may move to a lower position with respect to the spindles for applying the last few wraps of yarn around the lower portion of the spindle. The apparatus further includes a control device operatively connected with the blades and responsive to movement of the ring rail mechanism for moving the blades to the operating and non-operating positions.

3,782,095

METHOD AND ARRANGEMENT FOR WITHDRAWING AIR FROM SPINNING UNITS

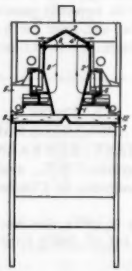
Ladislav Bures, Usti nad Orlici; Jaroslav Rajnoha, Tyniste nad Orlici; Milan Chrtek, Ceska Trebova; Miroslav Cerny; Citbor Doudlebsky, both of Usti nad Orlici, and Josef Hybl, Ceska Trebova, all of Czechoslovakia, assignors to Elitex, Zavody Textilniho Strojirenstvi, Liberec, Czechoslovakia

Filed Feb. 2, 1972, Ser. No. 222,797

Claims priority, application Czechoslovakia, Feb. 19, 1971, 1248/71

Int. Cl. D01h *1/00*

U.S. Cl. 57—56 **10 Claims**



A textile installation for spinning fibrous material and converting it into yarn includes a plurality of spinning units arranged in substantially side-by-side relationship along a given direction. Each such unit has an air-discharge outlet for discharging air. A passage system extends along said direction, communicates with the discharge outlets, and communicates with the ambient atmosphere over at least a major portion of its length. In this way, the air flow discharged from each outlet will travel through such passage means to the atmosphere along substantially identical flow paths so as to maintain the air-flow and pressure conditions in each spinning unit substantially identical.

3,782,096

APPARATUS AND METHOD FOR PRODUCING NO-TWIST CENTER-PULL ROVING PACKAGES

Harald E. Karlson, Santa Monica, Calif., assignor to Goldsworthy Engineering, Inc., Torrance, Calif.

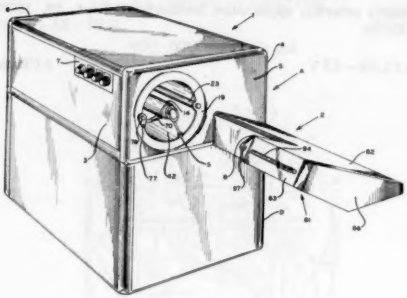
Filed Sept. 25, 1970, Ser. No. 75,524

Int. Cl. D01h *1/04*; **B65h** *54/02*

U.S. Cl. 57—71 **25 Claims**

An apparatus and a method for producing a roving package by pretwisting a roving band during winding of the package to produce a one-twist per revolution band layer configuration. A roving band feeding eye is reciprocated with respect to and

simultaneously orbited about a mandrel for winding filament containing roving strands thereupon. The winding is accomplished over the end of the mandrel so that a twist is incorporated in each turn of the roving strand for every revolution of the feeding eye. A device is also provided for shifting the winding eye radially outwardly as the diameter of the roving package increases during winding.



3,782,097

IMPROVEMENT OF SPINNING MACHINERY PROVIDED WITH THE FLYER TWISTING AND WINDING MECHANISM

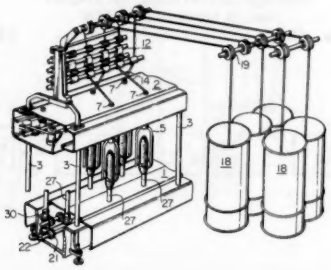
Minoru Nakamura, Amagasaki, and Akira Umefuji, Itami, both of Japan, assignors to Osaka Kiko Kabushiki Kaisha, Osaka, Japan

Filed Sept. 2, 1971, Ser. No. 177,410

Claims priority, application Japan, Sept. 10, 1970, 45/79732

Int. Cl. D01h *1/04, 7/40, 7/42*

U.S. Cl. 57—96 **9 Claims**



The spinning machinery of the present invention is provided with an improved twisting and winding mechanism comprising a bobbin rail provided with means for driving and lifting each spindle so as to make a package upon a bobbin held by each spindle, and a flyer rail rotatably suspending each flyer at each position facing the corresponding spindle head and holding means for driving each flyer at a predetermined constant rotation speed. The flyer rail is rigidly supported by supporting pillars vertically mounted upon the bobbin rail, and the draft mechanism is rigidly mounted upon the flyer rail.

3,782,098

CLOSURE MEANS FOR THREADING SLOT OF BALLOON RESTRAINER DEVICE FOR TEXTILE YARN PROCESSING MACHINE

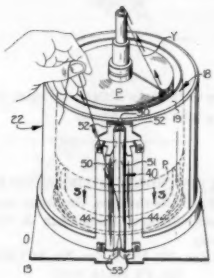
Manfred Bermges, Nettetal, Germany, assignor to Palitex Project Company GmbH, Krefeld, Germany

Filed June 6, 1972, Ser. No. 260,139

Claims priority, application Germany, June 12, 1971, P 21 29 259.1

Int. Cl. D01h *1/42, 13/12*

U.S. Cl. 57—106 **7 Claims**



Improved closure means for the threading slot of a balloon restrainer device in a textile yarn processing machine, such as a twister or the like, which includes a spindle assembly for carrying a package of yarn to be withdrawn and processed and which produces a rotating balloon of the yarn around the package as it is withdrawn therefrom. The improved closure means comprise resilient means secured to the outside surface of the balloon restrainer and spanning the threading slot for resiliently closing the threading slot from the outside thereof during yarn processing operations for allowing the formation of a cushioning column of air within the threading slot from the inside of the balloon restrainer for preventing the escape of rotating air produced by the rotating balloon of yarn through the threading slot and thereby eliminating undesirable noise and which allows the opening of the slot during yarn threading for movement of the yarn therethrough.

3,782,099

FLYER

Hans-Jorg Schwager, Chemin de la Plaisante 6, 1012 Lausanne, Switzerland

Filed Dec. 8, 1971, Ser. No. 205,818

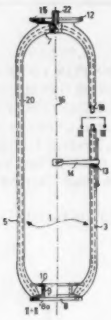
Claims priority, application Switzerland, Jan. 13, 1971, 448/71

Int. Cl. D01h *7/32*

U.S. Cl. 57—117 **3 Claims**

A flyer has a unitary frame that is cast of a light alloy metal and includes a pair of legs joined at their upper ends by a connecting and supporting arch and a lower annular member to which the legs are securely joined at their lower extremities to form a closed loop. The frame also includes at least one rigid

tubular member in the arch that extends downwardly through the legs and is embedded in the lower member. A press-finger



is mounted on one of the legs with the tubular member of that leg being a guiding tube for the sliver.

3,782,100

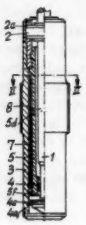
SPINDLE FOR SPINNING OR TWISTING MACHINES

Fritz Stahlecker, Bad Ueberkingen, Germany, assignor to Spindelfabrik Suessen, Schurr, Stahlecker & Grill G.m.b.H., Suessen, Germany

Filed Jan. 20, 1971, Ser. No. 107,936

Int. Cl. D01h *7/12*

U.S. Cl. 57—135 **12 Claims**



A spindle with a common housing for the collar bearing and footstep bearing of the rotatable center shaft in which the footstep bearing is provided with centering means which counteract the deflections of the lower end of the center shaft and comprise a tube of plastic of a certain inherent resilience in the lower end of which at least the part of the footstep bearing is mounted which is subjected to radial pressures of the lower end of the shaft, while its upper end is mounted in the housing underneath the collar bearing so that the lower end is resiliently pivotable either due to the resilience of the tube when its upper end is rigidly secured to the housing or due to a so-called basket spring acting upon the lower end of the tube when the upper end of the latter is pivotably mounted in the upper part of the housing. These centering means further comprise suitable resilient damping means of a conventional type, for example, an oil-immersed coil spring, which act upon the lower part of the plastic tube.

3,782,101

TIMEPIECES WITH TORSION RESONATORS

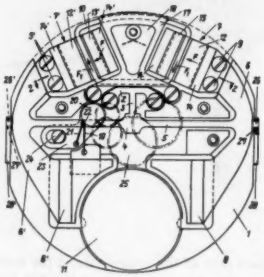
Philippe Kuffer, Bienne, Switzerland, assignor to Montres Rolex S.A., Geneva; Manufacture Des Montres Rolex S.A., Bienne and Societe Anonyme De La Fabrique D'Horlogeric Le Coultre & Cie, Le Sentier, all of Switzerland

Filed Sept. 20, 1971, Ser. No. 182,085

Claims priority, application Switzerland, Sept. 29, 1970, 14403/70

Int. Cl. G04c *3/00, 5/00*

U.S. Cl. 58—23 V **5 Claims**



A torsion resonator comprises an elongated torsion bar made in one flat piece with anchor-shaped ends supporting masses and an enlarged median zone at one side of which it is fixed by an elastically deformable branch to the bottom plate of a timepiece. An electrical transducer maintains torsional oscillation of the resonator and the relatively high torsional moment of inertia of the median zone compared to the rest of the bar prevents torsional efforts being transmitted to the supporting branch. Cooperating parts at the ends of the torsion bar and on the plate limit the amplitude of displacement of the torsion bar about the elastic branch.

3,782,102

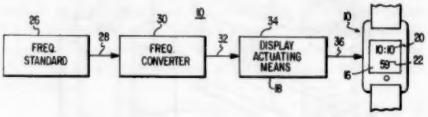
SOLID STATE WATCH WITH MAGNETIC SETTING

John M. Bergey, Lancaster, Pa., assignor to Time Computer, Inc., Lancaster, Pa.

Filed Apr. 29, 1971, Ser. No. 138,557

Int. Cl. G04b *19/30, 27/00*

U.S. Cl. 58—50 R **5 Claims**



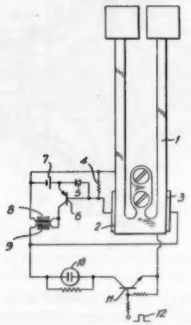
Disclosed is a solid state electronic wristwatch with no moving parts. The watch electronics are hermetically sealed in the watch case to be free of dust and moisture and the sealed components are resiliently mounted for improved shock resistance. Two setting switches and a demand switch within the casing are operated from outside the watch by permanent magnets, the demand magnet operating with a demand pushbutton. The setting magnet may be stored in the watch bracelet.

3,782,103

DRIVING ARRANGEMENT FOR LIQUID CRYSTAL DISPLAY IN TIMEPIECES

Toshiaki Saito, Suwa, Japan, assignor to Kabushiki Kaisha Suwa Seikosha, Tokyo, Japan

Filed Jan. 28, 1972, Ser. No. 221,687
Claims priority, application Japan, Feb. 3, 1971, 46/3769
Int. Cl. G04b *19/30*; G04c *3/00*
U.S. Cl. 58—50 R 4 Claims



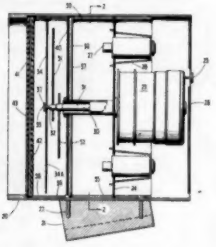
A driving arrangement for liquid crystal displays for timepieces wherein the relatively low voltage of a battery is stepped up in response to the oscillating frequency of the time standard oscillator for application to the liquid crystal displays. Where said time standard vibrator is a piezo-electrically driven tuning fork type vibrator, the driving signal for said vibrator is also obtained from the secondary of the step-up transformer.

3,782,104

TIMER HAVING A COLOR-DISPLAY SYSTEM

Jordan Kirsch, 78 Huron Ave., Cambridge, Mass.

Division of Ser. No. 93,051, Nov. 27, 1970, Pat. No. 3,694,054.
This application Aug. 10, 1972, Ser. No. 279,618
Int. Cl. G04b *19/24*; G02b *1/24*
U.S. Cl. 58—50 R 10 Claims



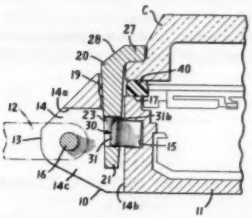
A color-display system embodied in a clock mechanism wherein the face of the clock constantly changes color. A pair of transparent, light-polarizing sheets are arranged parallel to one another with one of the sheets forming the face of the clock. A pair of birefringent sheets are positioned between the polarizing sheets with one of the sheets having a greater retardance than the other. The one sheet is arranged with one of the principal axes at a fixed 45-degree angle relative to each of the polarizing axes. The other birefringent sheet is supported for rotation about an axis normal to the first birefringent sheet. Rotation of this birefringent sheet by the clock mechanism effectively changes the color of the clock face.

3,782,105

RECTANGULAR WATERPROOF WATCH CASING ASSEMBLY

Hideo Nozawa, Tokyo, Japan, assignor to Kabushiki Kaisha Daini Seikosha, Tokyo, Japan

Filed May 4, 1972, Ser. No. 250,150
Claims priority, application Japan, May 4, 1971, 46/35394; May 4, 1971, 46/29880; May 7, 1971, 46/35809
Int. Cl. G04b *37/08*
U.S. Cl. 58—90 R 18 Claims



A rectangular waterproof watch casing assembly comprises a unitary rectangular casing, a deformable sealing member positioned around the top periphery of the rectangular casing, a rectangular watch crystal positioned atop the sealing member, and means for releasably attaching the watch crystal to the rectangular casing to effect compression of the sealing member to a sufficient degree to obtain a watertight assembly. The attaching means comprises a rectangular retaining member connected to the watch crystal and having a pair of projections which are inserted into appropriate slots provided in the rectangular casing. Locking means are employed for releasably engaging with the projections to releasably lock the rectangular retaining member in a predetermined position wherein the retaining member compresses the sealing member between itself and the top of the rectangular watch casing. The locking means comprises an opening provided in each projection and a locking member insertable into the opening and engageable with the projection.

3,782,106

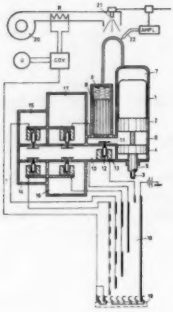
IDLING SPEED CONTROL FOR STIRLING CYCLE ENGINE

Sven Anders Samuel Hakansson, Malmo, Sweden, assignor to Kommanditbolaget United Stirling (Sweden) AB & Co., Malmo, Sweden

Filed June 23, 1972, Ser. No. 265,626
Claims priority, application Great Britain, July 7, 1971, 31,822/71
Int. Cl. F03g *7/06*
U.S. Cl. 60—24 5 Claims

An idling speed control is provided for a Stirling cycle engine wherein a variable volume working space is provided by a selectively controlled series of dead volume chambers. The idling speed control comprises a dual action system loading the engine in response to (1) a governor speed setting by

coupling an electrical generator loaded by a heater resistor in the air flow path to the burner to increase shaft load and (2) a

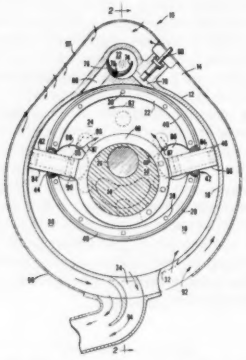


temperature responsive feedback system to decrease the supply of fuel and air to the burner when said heater raises the temperature.

3,782,107
AIR-COOLED ROTARY INTERNAL COMBUSTION ENGINE

Wilfrid H. Bendall, 19 N. Broad St., Pawcatuck, Conn.

Filed Nov. 10, 1972, Ser. No. 305,334
Int. Cl. F02c *5/12*
U.S. Cl. 60—39.61 **21 Claims**



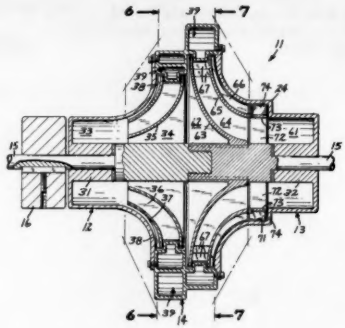
An air-cooled rotary vane engine utilizing external and internal cooling air flow and a turbulence combustion chamber controlled by an automatic valve operated by the working fluid pressures; the engine is further constructed for operation with clearance sealing and dry internal lubrication.

3,782,108
GAS TURBINE

Merrill R. Holste, 2228 St. Stephens St., St. Paul, Minn.

Filed Sept. 25, 1972, Ser. No. 292,075
Int. Cl. F02c *3/12, 3/08, 7/12*
U.S. Cl. 60—39.2 **22 Claims**

The disclosure is directed to a centrifugal flow gas turbine consisting of a centrifugal compressor and an inward flow power turbine interconnected by a spirally shaped combustion chamber. The compressor and power turbine are commonly mounted on a rotating shaft which also carries a flywheel to

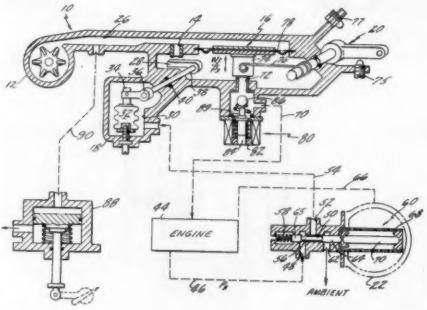


store rotational energy of the turbine after it has reached higher rotational velocities. Means are included for intermittently firing the turbine to maintain smooth and economical operation within a predetermined range of engine speeds.

3,782,109
FUEL CONTROL

Kail L. Linebrink, Bloomfield, Conn., and Charles F. Stearns, East Longmeadow, Mass., assignors to United Aircraft Corporation, East Hartford, Conn.

Filed Apr. 14, 1972, Ser. No. 244,080
Int. Cl. F02c *9/08*
U.S. Cl. 60—39.28 T **12 Claims**



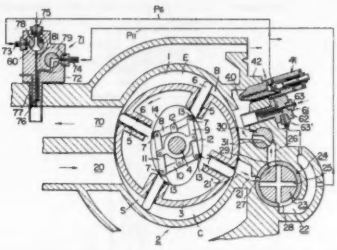
A fuel control for gas turbine power plant adapted for automotive use includes an open loop scheduling control for acceleration which varies the pressure drop across the metering orifice as a function Wf/P_3 (W_f = fuel flow in pounds/hours, P_3 = compressor discharge pressure in pounds/square inch absolute) and varies the area of said metering orifice as a function of P_3 divided by another engine operating parameter such as turbine exhaust temperature to effectuate multiplication of the Wf/P_3 and P_3 values for establishing the value of W_f, where Wf/P_3 is scheduled by the foot pedal position.

3,782,110

VANE-TYPE ROTARY ENGINE

Akira Kobayashi, Nagoya, Japan, assignor to Aisin Seiki Kabushiki Kaisha, Kariya-shi, Japan

Filed Aug. 7, 1972, Ser. No. 278,202
Claims priority, application Japan, Oct. 18, 1971, 46/82343
Int. Cl. F02c *3/12, 3/18*
U.S. Cl. 60—39.43 **6 Claims**



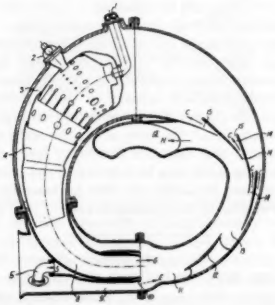
A plurality of operative chambers are defined by a rotor and its radially movable vanes within a substantially elliptical cylinder. A fluid compressed in the successive operative chambers is first introduced into a fluid storage chamber through a rotary valve and a pressure control valve and thence into a combustion chamber back through the said valves at suitable pressure and at the proper time. The gaseous products of combustion thus initiated in the combustion chamber and discharged through an exhaust port after expanding in the successive operative chambers may be further subjected to secondary combustion caused by another fuel injection means provided to a passageway extending from the exhaust ports into intake ports of a second vane-type rotary engine from which the various combustion means provided in the first engine are absent. The first engine may be supercharged by a blower constructed similarly to the second engine and driven by the first engine.

3,782,111

METHOD AND APPARATUS FOR GENERATING WASTE GASES

Stefan Kotoc, Prague, Czechoslovakia, assignor to Ustav pro vyzkum motorovych vozidel, Prague, Czechoslovakia

Filed Apr. 7, 1972, Ser. No. 242,074
Int. Cl. F23r *1/04;* **F02g** *1/00;* **F02k** *11/00*
U.S. Cl. 60—39.69 **12 Claims**



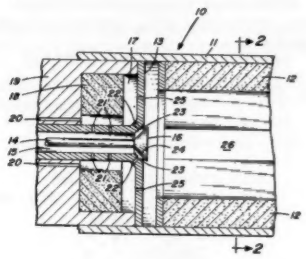
This invention deals with a method for generating waste gases in which the chemical energy of a fuel supplied to a generator is released in the combustion chamber of the generator by the presence of an oxidant and due to the pressure, thermal and kinetic energy of the waste gases which, after expansion and acceleration, are led into an ejection and a contact area where exchange of energy takes place between the waste gases and the oxidant. The waste gases are then set in motion in a curvi linear path while at the same time transmission of the heat and motion of the oxidant which is sucked into and mixed with the waste gases in the contact area and in which area a part of the so called working medium, compressed by centrifugal force is braked by a diffusion means and guided back into the generator combustion chamber as oxidant for changing the chemical energy of the fuel into another form of energy while the remaining portion of the working medium is supplied to exhaust where it is put to a desired use, such as operating turbines, jet reactors, and the like or used to heat kettles or reactors and the like.

3,782,112

HYBRID GENERATOR

Raymond J. Muzzy, Saratoga, Calif., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Feb. 24, 1972, Ser. No. 230,538
Int. Cl. F02k *9/06*
U.S. Cl. 60—251 **9 Claims**



An improved hybrid injector to gasify and aerate a liquid oxidizer. A solid propellant gas generator is enclosed in an annular manifold surrounding the passageway leading from a source of liquid oxidizer to the main combustion chamber. Openings through the manifold communicate the gas generator with the liquid oxidizer passageway to thereby gasify and aerate the liquid oxidizer passing into the main combustion chamber.

3,782,113

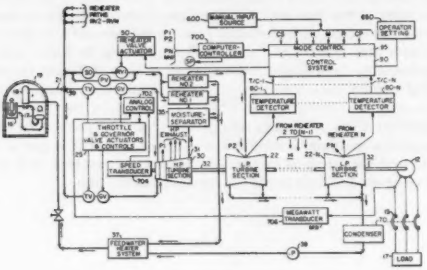
ELECTRIC POWER PLANT SYSTEM AND METHOD FOR OPERATING A STEAM TURBINE ESPECIALLY OF THE NUCLEAR TYPE WITH ELECTRONIC REHEAT CONTROL OF A CYCLE STEAM REHEATER

Michael C. Luongo, Brookhaven, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Jan. 27, 1972, Ser. No. 221,185
Int. Cl. F01k *7/16*
U.S. Cl. 60—73 **38 Claims**

An electronic system is provided for operating a nuclear electric power plant with electronic steam reheating control applied to the nuclear turbine system in response to low pressure turbine temperatures, and the control is adapted to

operate in a plurality of different automatic control modes to control reheating steam flow and other steam conditions, each



of such modes of control permitting turbine temperature variations within predetermined constraints and according to predetermined functions of time.

3,782,114

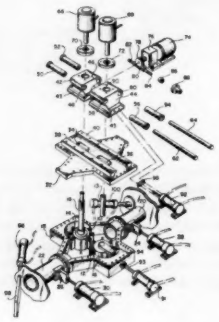
HYDRAULIC PROPULSION SYSTEM

Frank Broes, Washington, D.C., assignor to Stradco, Inc., Washington, D.C.

Filed Mar. 24, 1972, Ser. No. 237,717

Int. Cl. B63h *11/08*

U.S. Cl. 60—221 **4 Claims**



An hydraulic propulsion system of the type employing a pair of drive rotors intersecting fluid flow in an hydraulic conduit. At least one of the rotors is laterally displaceable with respect to the other, so as to vary the degree of engagement of the rotors with fluid flow.

3,782,115

METHOD AND APPARATUS FOR REDUCING NITROGEN OXIDE AIR POLLUTION

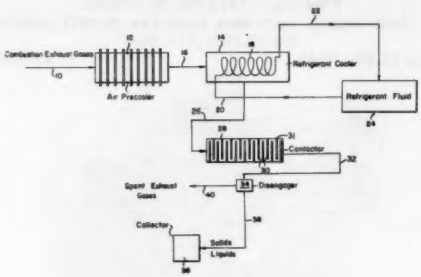
Cecil J. Johnson, 314 N. Chauncey St., Columbia City, Ind.

Continuation-in-part of Ser. No. 776,973, Nov. 19, 1968, abandoned. This application Sept. 30, 1970, Ser. No. 77,045

Int. Cl. F01n *3/02*

U.S. Cl. 60—274 **1 Claim**

A method and apparatus for reducing the nitrogen dioxide content of internal combustion engine exhaust gases by cooling the gases, condensing the water vapor therein and dissolving and taking off the nitrogen dioxide in the water condensate.



3,782,116

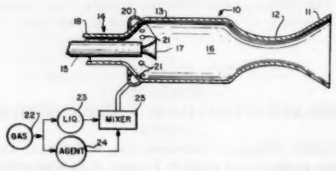
FOAM COOLING AND ACOUSTIC DAMPING FOR INTERNAL COMBUSTION ENGINES

Harland L. Burge, Tarzana, and Newell C. Rodewald, Manhattan Beach, both of Calif., assignors to TRW Inc., Redondo Beach, Calif.

Filed Mar. 10, 1971, Ser. No. 122,858

Int. Cl. F02k *1/26, 9/02;* **F01n** *1/00*

U.S. Cl. 60—258 **7 Claims**



There is disclosed a method and apparatus for providing thermal protection and acoustic damping in an internal combustion engine by means of injecting a liquid base foam into the gas boundary zone of the combustion gases. A foaming agent, a liquid, and a gas are processed to produce a high expansion foam solution. In one embodiment the foam is generated external to the combustion chamber and is supplied to a distribution manifold located at the injector end of a rocket motor. The foam is then distributed through a plurality of orifices which direct the foam along the walls of the combustion zone and thus into the boundary layer of the combustion gases. The foam may be injected at any point along the gas boundary zone including the free jet boundary layer immediately downstream of the exhaust exit.

3,782,117

OIL WELL PUMPING APPARATUS

Robert G. James, 10813 Enger St., Bakersfield, Calif.

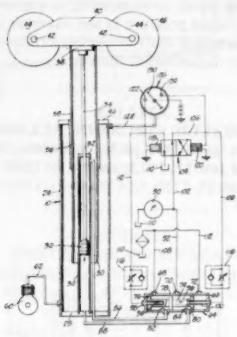
Filed June 9, 1971, Ser. No. 151,276

Int. Cl. F15b *15/18*

U.S. Cl. 60—372 **5 Claims**

A deep well pumping device including a vertically reciprocating pump piston supporting a pulley on a horizontal axis with a flexible band-like tension member anchored at one

end, extending over the pulley and thence downwardly to connect to the polish rod in vertical alignment with said rod, the pumping apparatus being hydraulically reciprocated in a circuit including a pump and reversing valve with limit switches activated by the reciprocating member at its limits of move-



ment to reverse the valve; and piston air pressure means surrounding the reciprocating member and connected thereto to cushion the return stroke thereof; the apparatus being mounted on a base and movable from an upright operative position to a horizontal collapsed position without affecting the relationship of the various operating parts.

3,782,118

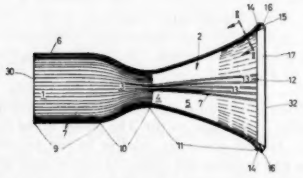
REGENERATIVELY COOLED THRUST GAS GENERATOR CONSTRUCTION AND METHOD OF MAKING SAME

Karl Butter, Munich; Michael Kaufmann, Neubiberg, and Helmut Dederra, Ottobrunn, all of Germany, assignors to Messerschmitt-Bolkow-Blohm Gesellschaft mit beschrankter Haftung, Ottobrunn bei Munich, Germany

Continuation of Ser. No. 62,448, Aug. 10, 1970, abandoned. This application Dec. 18, 1972, Ser. No. 315,984

Int. Cl. F02k *11/02*

U.S. Cl. 60—260 **9 Claims**



A thrust gas generator includes combustion chamber and a thrust nozzle and has a plurality of longitudinally arranged and circumferentially spaced capillary tubes which form closed canals for the cooling medium, especially a liquid. A metallic layer particularly one which is applied by electroplating, joins the capillary tubes to form a pressure-tight combustion chamber. The electroplated metal is applied to positively embrace the capillary tubes at their radially outward portions or their radially inward portions to bridge the spaces between the tubes. The tubes are shaped so that they have a substantially constant cross section over major portion of their length and they may include a variable cross section in the thrust nozzle or neck portion.

3,782,119

STIRLING CYCLE ENGINE WITH POWER CONTROL BY CHARGE OF WORKING GAS PRESSURE

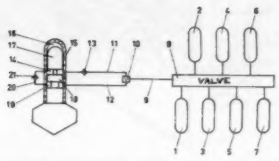
Yngve Roland Gothberg, Malmo, Sweden, assignor to Kommanditbolaget United Stirling (Sweden) AB & Co., Malmo, Sweden

Filed Apr. 12, 1972, Ser. No. 243,340

Claims priority, application Great Britain, Apr. 24, 1971, 11,228/71

Int. Cl. F02g *1/04, 1/06*

U.S. Cl. 60—521 **5 Claims**



In a Stirling cycle engine, the power is controlled by manipulating a valve arrangement to connect one of a plurality of gas reservoir chambers containing working gas at different pressures to the working chamber.

3,782,120

THERMODYNAMIC RECIPROCATING MACHINE WITH TEMPERATURE-CONTROLLED FUEL SUPPLY TO BURNER

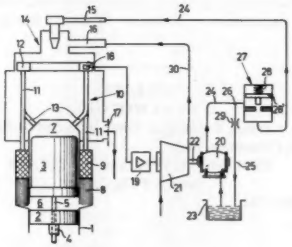
Klaus Brandenburg, Kirchen-Wehbach, Germany, assignor to U.S. Philips Corporation, New York, N.Y.

Filed Feb. 24, 1972, Ser. No. 229,002

Claims priority, application Netherlands, Mar. 4, 1971, 7102861

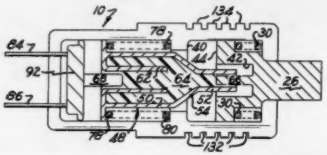
Int. Cl. F23k *5/00;* **F02g** *1/06*

U.S. Cl. 60—524 **9 Claims**



A thermodynamic reciprocating machine comprising a burner device having an inlet for air of combustion to which air of combustion can be supplied by a fan or the like and having a fuel inlet to which fuel originating from a fuel container can be supplied by a fuel pumping device, the outlet of which communicates with the fuel inlet via a fuel supply duct, a fuel return duct being present which at a place at the outlet of the pumping device is connected to the fuel supply duct, a temperature-sensitive element being furthermore present which controls tbe number of revolutions of the pumping device and the fan coupled thereto which each have an output which is directly proportional to the number of revolutions, a pressure control valve which during operation maintains a constant pressure at the outlet of the pumping device being incorporated in the fuel supply duct between the connection plase of the fuel return duct thereto and the fuel inlet, a flow restricting element being incorporated in the fuel return duct.

3,782,121
ACTUATOR APPARATUS
Leo Marcoux, Rehoboth, and Peter G. Berg, Norton, both of Mass., assignors to Texas Instruments Incorporated, Dallas, Tex.
Filed May 1, 1972, Ser. No. 248,942
Int. Cl. F03g *7/06*
U.S. Cl. 60—527 **22 Claims**

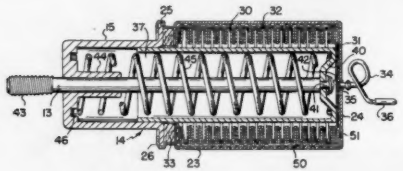


An actuator for converting electrical energy into linear mechanical movement comprises a chamber containing an expandable material and a positive temperature coefficient (PTC) of resistance heater located in thermal communication with the chamber. A first piston transmits force from the expandable material to an external load against the force of a first return spring. The first piston moves out of a casing from a retracted position at a first stop to a protracted position at a second stop at which point continued expansion of the expandable material in one embodiment causes a second piston to separate the chamber from the heat source against the bias of a second return spring. As the chamber separates the thermal resistance between the heat source and the chamber greatly increases until equilibrium is obtained between heat input to the expandable medium and pressure exerted by the medium.

Another embodiment particularly useful for high ambient temperatures and for a longer time period before the actuator returns to its at rest position after deenergization of the heat source employs a chamber fixed in the casing but having a secondary piston which moves to expand the chamber volume to match the volume increase of the expandable material.

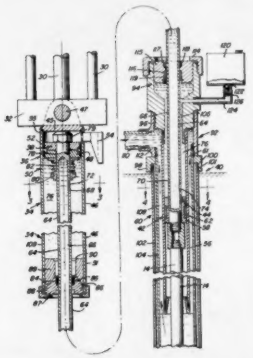
Several variations are shown for mounting the actuator to a support.

3,782,122
HEAT MOTOR
Jerome L. Lorenz, Columbus, Ohio, assignor to Ronco Incorporated, Columbus, Ohio
Filed Feb. 14, 1972, Ser. No. 225,953
Int. Cl. F03g *7/06*
U.S. Cl. 60—531 **18 Claims**



A heat motor comprises a sealed fluid vaporizing and condensing chamber formed by the insides of a container having a bellows assembled therein to form a shiftable wall of the chamber. The bellows moves an actuator shaft in a power stroke upon increase in the vapor pressure of a volatile liquid inside the container and against a loading spring acting on the shaft. A screen wick extends along a substantial portion of the insides of the container and is saturated by a limited fill of the volatile liquid. One portion of the wick is heated by an electric heater to vaporize the liquid therein and the vaporized liquid condenses on the unheated portion of the wick and is transported by capillary attraction to the heated portion. The electric heater circuit is controlled in accordance with a command signal voltage so as to maintain a predetermined vaporizing temperature of the liquid corresponding to a given signal voltage whereby the vapor pressure in the chamber is controlled to maintain the actuator shaft in a predetermined position in its actuating stroke according to the signal.

3,782,123
HYDRAULIC STROKE INCREASER
Ben E. Muschalek, Jr., 1104 Apache, McCamey, Tex.
Filed Jan. 11, 1972, Ser. No. 217,054
Int. Cl. F15b *7/00*; **F16h** *21/18*
U.S. Cl. 60—533 **10 Claims**

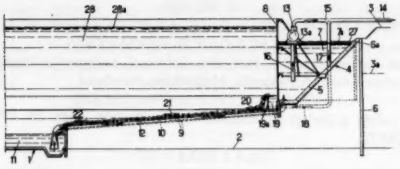


A stroke increaser for use in well pumping systems and the like has a fluid motor, with the cylinder of the fluid motor attached to an actuator, such as the bridle of a walking beam assembly, and the piston of the fluid motor connected to a longitudinally extending hollow polish rod. A fluid pump has a cylinder arranged in the pump assembly and has a piston connected to the other end of the hollow polish rod. A transverse bore is arranged in each end portion of the hollow polish rod. A hydraulic fluid is provided in the cylinders in the hollow polish rod. When the actuator begins an upward stroke, both pistons are in the bottom portion of their respective cylinders. The piston of the fluid pump will be forced upwardly with respect to its associated cylinder by the upward movement of the actuator. The hydraulic fluid will be forced from the cylinder of the fluid pump through the hollow polish rod and into a cylinder of the fluid motor. The piston of the fluid motor will thus be forced upwardly relative to the cylinder of the fluid motor and increase the stroke of sucker rods attached to the piston of the fluid pump. The above process is reversed for a downward stroke of the actuator.

3,782,124
LIQUID STORAGE TANK
Nestor Pladys, Dunkerque, France, assignor to Societe Anonyme dite: Societe Francaise Des Petroles B.P., Courbevoie and Societe Anonyme dite: Soletanche, Paris, both of France
Filed Oct. 13, 1972, Ser. No. 297,354
Claims priority, application France, Oct. 15, 1971, 7137193
Int. Cl. B65g *5/00*
U.S. Cl. 61—.5 **10 Claims**

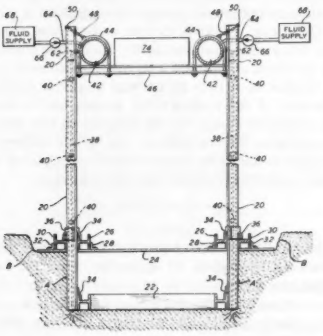
A novel semi-buried liquid storage tank is disclosed which comprises a frustoconical base, having a central well and a

separate annular basin for containment of a hydrostatic balancing liquid. A duct is provided to permit fluid flow



between the annular basin and the storage area of the tank. The tank is built on a natural or artificial impermeable soil layer or bottom.

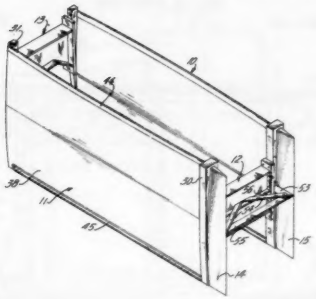
3,782,125
EARTH SHORING APPARATUS
Edward J. Holl, 320 Warwick Ave., South Orange, N.J.
Filed Jan. 11, 1972, Ser. No. 216,936
Int. Cl. E21d *5/12*
U.S. Cl. 61—41 A **7 Claims**



Two opposed, parallel series of suitably guided, elongate, non-interlocking, steel sheeting elements are driven vertically into the earth adjacent to an area where earth is to be excavated, to shore against earth collapse. The driving of the sheeting elements is accomplished by hydraulic or other fluid means associated with such elements, and the weight of relatively massive manifolds and fluid-supply and fluid-distribution pipes is utilized to assist gravitation of the sheeting elements into the earth as the hydraulic fluid flushes earth away from beneath the sheeting elements. Under many soil conditions, additional weight is imposed upon the upper ends of the sheeting elements to assist the hydraulic or fluid means. The imposition of suction through the hydraulic means may be employed under some soil conditions to de-water the earth area at or adjacent to the excavation.

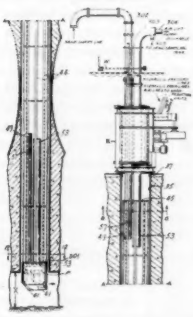
3,782,126
STRESSED SKIN SAFETY TRENCHING BOX
John R. Pavese, 761 Cathy Ann Ct., Paramus, N.J.
Filed May 22, 1972, Ser. No. 255,202
Int. Cl. E21d *5/12*
U.S. Cl. 61—41 A **17 Claims**

A safety trenching box is provided having a "stressed skin" wall construction which permits the box to be strong, yet light-in-weight. Each of the wall members of the box has a pair of end columns which are adapted to be bolted to spreader members of varying widths, so that the box may be used in trenches of differenet size. The wall members are constructed of one or more flexible plates which are curved or "pre-stressed" about



a substantially horizontal axis, so that the lateral forces exerted by the sides of the trench are borne by tension and compression stresses in the flexible plates or "skin" of the wall members.

3,782,127
METHOD AND APPARATUS FOR DEPOSITING FOUNDATIONS UNDER SUBMERGED STRUCTURES
Kaare Ritter Olsen, 80 Selkirk Crescent, Hudson, Quebec, Canada
Filed June 12, 1972, Ser. No. 261,655
Int. Cl. E02d *27/52*
U.S. Cl. 61—50 **8 Claims**

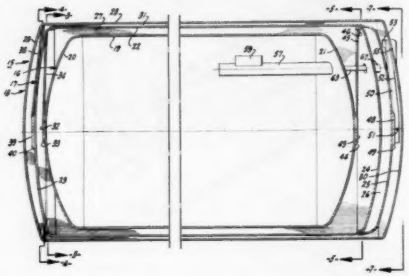


The disclosure teaches a novel method for depositing foundation-providing sand under structures submerged in water, such as underwater tunnels, as well as apparatus for carrying out the method. In accordance with the teachings, the structure contains an opening extending from the top to the bottom of the structure. An arrangement comprising sand-jetting means and water suction means are extended through the opening from the top such that the jetting and suction means extend beyond the base of the structure. The jetting means is rotatable through 360°. Sand is jetted through the arrangement while water under the structure is simultaneously removed by the suction means whereby a bank of sand is built up under the structure. The jetting means is aimed slightly above the horizontal.

3,782,128
CRYOGENIC STORAGE VESSEL

Robert S. Hampton; Cesar Cavanna; Stasys J. Kungys, all of Livermore, and Paul J. Eifel, Walnut Creek, all of Calif., assignors to Lox Equipment Company, Livermore, Calif.

Filed June 1, 1970, Ser. No. 42,052
Int. Cl. F17c 7/02
U.S. Cl. 62—51 **24 Claims**

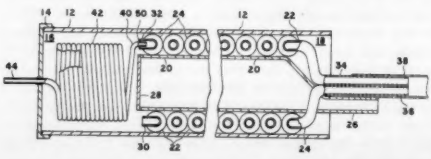


A vessel for storing and transporting cryogenic fluids such as liquid helium. The vessel comprises a plurality of elongated containers supported one within another in coaxial circumjacent relation in a manner minimizing heat transmission therebetween, and it further comprises a cooling system forming a temperature barrier that restricts inward migration of heat from the outer to the inner container. Respecting the support system, the inner fluid-receiving container is supported by an encapsulating intermediate heat shield container which in turn is supported by an outer jacket surrounding and enclosing the intermediate heat shield. The support means effecting such interrelationship includes both transverse support structure constraining the containers relative to each other against transverse or radial displacements and longitudinal support structure interconnecting the containers one with another and constraining the same against relative longitudinal displacements at least at one end of the vessel. The transverse support structure constitutes a plurality of structurally independent supports as respects the interconnection of the inner container with the intermediate heat shield and interconnection of the heat shield with the outer jacket; and all of the support structures define restricted thermal flow paths through which heat migration from the outer container to the inner container is sharply limited Respecting the cooling system, two flow-separated cooling coils surround the heat shield container, one of which carries a coolant such as liquid nitrogen and the other of which connects both with the inner fluid-receiving container and with a delivery system through which fluid is withdrawn from the inner container.

3,782,129
PROPORTIONATE FLOW CRYOSTAT

Rodney J. Peterson, Pomona, Calif., assignor to General Dynamics Corporation, Pomona, Calif.

Filed Oct. 24, 1972, Ser. No. 300,003
Int. Cl. F25b 19/00
U.S. Cl. 62—56 **10 Claims**

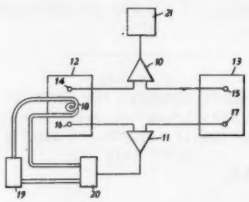


Disclosed is a proportionate flow cryostat for remotely cooling an associated object without being physically connected thereto. The invention herein described was made in the course of or under a contract, or subcontract thereunder, with the Department of the Navy.

3,782,130
APPARATUS FOR PROVIDING AN INDICATION OF THE IMMINENCE OF ICE-FORMATION

John Anderson Irvine, Penicuik, Scotland, assignor to Findlay, Irvine Limited, Penicuik, Midlothian, Scotland

Filed May 9, 1972, Ser. No. 251,816
Claims priority, application Great Britain, May 20, 1971, 16109/71
Int. Cl. F25d 21/02
U.S. Cl. 62—128 **10 Claims**

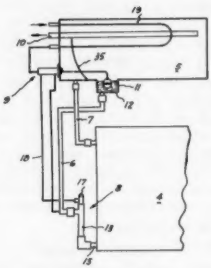


A refrigerator is arranged to cool part of an area for which an indication of the imminence of ice-formation is required. A first temperature sensitive circuit and a first conductivity probe are situated in that part of the area while a second temperature sensitive circuit and a second conductivity probe are situated outside it. A first differential amplifier compares the conductivities of the conductivity probes and a second differential amplifier compares the outputs of the temperature sensitive circuits. The outputs of one of the differential amplifiers controls the refrigerator while the output of the other differential amplifier provides the said indication.

3,782,131
REFRIGERATION SYSTEM EVAPORATOR

Albert Edward Merryfull, 17 Ayres Rd. East, St. Ives, N. S. W., Australia

Filed Mar. 29, 1972, Ser. No. 239,159
Claims priority, application Australia, Mar. 31, 1971, 4465
Int. Cl. F25b 41/04
U.S. Cl. 62—218 **4 Claims**



The evaporator includes a heat exchange element adapted to be filled with liquid refrigerant and a surge drum disposed ab ove the element. A first duct connects the drum interior to an inlet at the lower end of the heat exchange element, and a second duct connects an outlet, adjacent the upper end of the heat exchange element, to the drum interior. A high pressure liquid ejector is included in the first duct and a refrigerant supply valve controls the supply of high pressure liquid

refrigerant to the ejector. A float valve control means opens and closes the supply valve responsive to variation of liquid level in the drum, and high pressure liquid fed to the ejector entrains refrigerant to flow from the drum to the heat exchange element. An adjustable threaded needle controls flow to the jet nozzle. The drum has a refrigerant vapor suction line outlet, and an oil pick-up tube extends from a point near the bottom of the interior of the drum to the suction line outlet.

3,782,132

HEAT-EXCHANGE SYSTEM

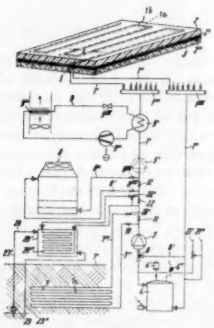
Hermann Lohoff, Bochum, Germany, assignor to CTC GmbH, Hamburg, Germany

Filed June 7, 1972, Ser. No. 260,389

Claims priority, application Germany, June 8, 1971, P 21 28 331.8

Int. Cl. F25d *23/12*

U.S. Cl. 62—260 **15 Claims**



A conduit has an inlet portion, an outlet portion, and a main body portion which is to be embedded in a structural element and which is composed of at least two parallel sections having identical internal cross-sectional areas and being in heat-exchanging contact with one another over their entire length. One of these sections is adapted to receive fresh incoming heat exchange fluid from the inlet portion and the other section is adapted to receive spent heat-exchange fluid from the first section and to conduct it to the outlet portion. A pump is provided for circulating heat-exchange fluid through the conduit and one or more identical or different heat-exchanges are interposed for adjusting the temperature of the heat-exchange fluid.

3,782,133

LOW TEMPERATURE STORAGE VESSEL

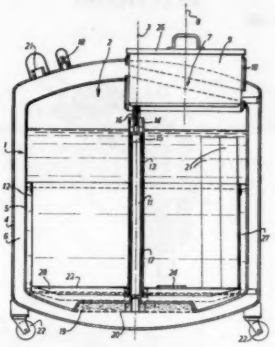
Jean-Michel Desperier, St. Maurice, and Gerard Sermanet, Yerres, both of France, assignors to L'Air Liquide, Societe Anonyme Pour L'Etude Et L'Exploitation Des Procedes Georges Claude, Paris, France

Filed Aug. 14, 1972, Ser. No. 280,166

Int. Cl. F25d *25/02*

U.S. Cl. 62—381 **3 Claims**

A low temperature storage vessel for storing receptacles containing perishables has a tray rotatable about a vertical axis, access to the tray being had through a laterally offset upper opening. The tray is supported for rotation on a vertical screw that bears on the upper end of an elongated vertical pivot. Manipulation of the screw raises and lowers the tray. In



the lowered position, the tray rests on the container bottom for stability during transport. In the raised position, the tray is rotatable and can be raised above ice formations.

3,782,134

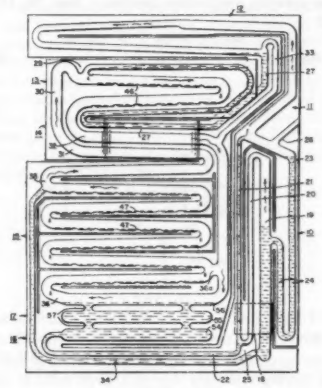
ABSORPTION REFRIGERATION SYSTEM

Jack D. Meess, Export; John C. Kastovich, Delmont, and Robert S. Lackey, Pittsburgh, all of Pa., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed May 13, 1969, Ser. No. 824,114

Int. Cl. F25b *15/10*

U.S. Cl. 62—476 **7 Claims**



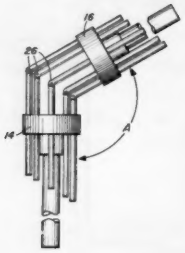
An absorption refrigeration system formed in substantially its entirety from at least two superimposed sheets bonded at their interfaces except for the portions defining operating components and interconnecting passages which are in outwardly expanded or embossed form, so that mass production techniques may be applied to the fabrication of the system.

3,782,135

COUPLING

Moses Beden, 466 Union St., Lynn, Mass.

Filed Feb. 11, 1972, Ser. No. 225,545
Int. Cl. F16d 3/08
U.S. Cl. 64—20 5 Claims



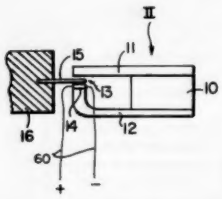
A rotary joint couples a driving and driven shaft to transmit torque with the shafts being rotatably supported at a fixed or variable angle to each other. The coupling includes a collar secured to the proximate ends of each shaft. The collars are connected by a plurality of rods which are freely and slidably received through holes circumferentially spaced and formed through the collars. Each of the rods is bent between its ends in the same angle as that between the shafts. As the driving shaft turns, the rods transmit torque to the driven collar and shaft. During operation the rods slide recriprocally within the holes formed in the collar.

3,782,136

PULSE GENERATOR FOR AN ELECTRICAL CONTROL SYSTEM OF A MACHINE

Jurgen Ploppa, and Wilhelm Hadam, both of Reutlingen, Germany, assignors to H. Stoll and Company, Reutlingen, Stollweg, Germany

Filed July 31, 1972, Ser. No. 276,409
Claims priority, application Germany, Aug. 10, 1971, P 21 40 063.5
Int. Cl. D04b 7/28, 15/70
U.S. Cl. 66—75 10 Claims



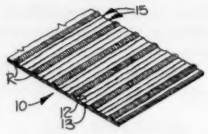
A pulse generator for an electrical control system of a machine having relatively movable parts such as for a programmed control system of a knitting machine. One machine part has a permanent magnet forming an air gap with at least one field plate in the air gap arranged such that the current therethrough depends on the nature of the magnetic field in the air gap. The other machine part has on it items to affect the nature of the magnetic field at the air gap upon relative movement of the machine parts, these items including a magnetically conductable body movable through the air gap and/or a magnetically conducting shunt body movable in the vicinity of the air gap. The magnetically conductable body may take the form of teeth on a soft iron comb, a soft iron plate with apertures, or separate soft iron pieces mounted separately for relative movement through the air gap.

3,782,137

STITCHED NON-WOVEN TEXTILE FABRIC HAVING VARIED PATTERN OF RAISED RIBS ON ONE FACE

George H. Hughes, Asheville, N.C., assignor to National Distillers and Chemical Corporation, New York, N.Y.

Filed June 2, 1972, Ser. No. 258,975
Int. Cl. D04b 23/10
U.S. Cl. 66—192 10 Claims



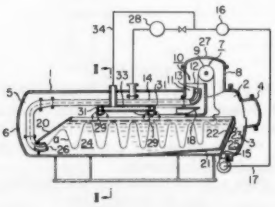
A non-woven, textile fabric adaptable for use as bedspread, drapery, upholstery or the like material characterized by varied pattern of raised ribs on one face thereof. The fabric comprises a non-woven base reinforced with spaced-apart rows of stitch chains including interconnected stitch loop components on one face and stitch components on the other face of the base, both being formed from a first set of yarns. A second set of yarns is stitched with the first set in selected rows of stitch chains only to form selected double yarn stitch loop components on the one face of the base in the selected rows of stitch chains and diagonally-extending, shogged stitch components on the other face of the base extending back and forth between adjacent selected rows of stitch chains causing the corresponding rows of stitch loop components on the one face of the base to draw closer together and form raised ribs of the base therebetween. The portions of the one face of the base between unselected rows of stitch chains not including any yarns of the second set being substantially planar and non-ribbed thereby providing a varied pattern of raised ribs on the one face of the resulting fabric.

3,782,138

APPARATUS FOR TREATING CLOTH WITH LIQUID

Takuji Kawasaki; Shoki Ogihara, and Mikio Watanabe, all of Fukui, Japan, assignors to Sakai Sen-I Kogyo Kabushiki Kaisha, Fukui-shi, Fukui-ken and Hokuriku Kakoki Kabushiki Kaisha, Komatsu-shi, Ishikawa-ken, Japan

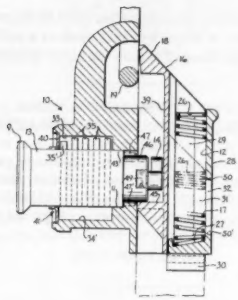
Filed Dec. 29, 1971, Ser. No. 213,414
Int. Cl. B05c 3/02
U.S. Cl. 68—177 6 Claims



A liquid flow type treating apparatus for treating cloth with liquid in which a staying chamber of treating liquid is provided inside of an axially extending drum shaped vessel, an overflow

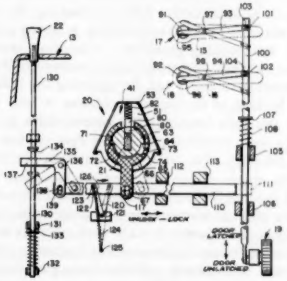
transfer mechanism and a driving reel are furnished inside of an accommodating cylinder provided in an upper end portion of the vessel, a guide tube connects the overflow transfer mechanism with the staying chamber, and a liquid falling mechanism prevents cloth transferred through the guide tube into the staying chamber from floating up in the staying chamber, so that any unevenness in the cloth is avoided and a uniform treatment of cloth is obtained.

3,782,139
LATCH MECHANISM
Hugo G. Rubner, Milwaukee, Wis., assignor to Briggs and Stratton, Wauwatosa, Wis.
Filed Jan. 21, 1972, Ser. No. 219,644
Int. Cl. E05b *65/02*
U.S. Cl. 70—81 **14 Claims**



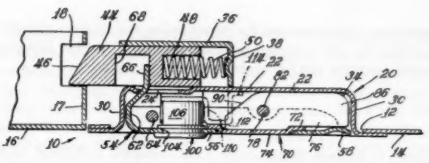
Latch mechanism having a lock cylinder which provides an actuator by which an exceptionally long retraction stroke of the latch bolt is effected in consequence of rotation of the cylinder through an arc of only 90°. A cavity which opens to the cylinder receiving bore accommodates the lock tumblers during withdrawal of the key from the cylinder in an unlocked position of cylinder rotation. The cavity also accommodates a bolt actuating cam on the cylinder at the time the cylinder is assembled with the lock body from the front thereof.

3,782,140
SECURITY DOOR LOCKING SYSTEM FOR AUTOMOBILES
William R. Price, 2226 Petrarca Rd., Cleveland, Ohio
Filed Apr. 3, 1972, Ser. No. 240,737
Int. Cl. E05b *65/34*
U.S. Cl. 70—124 **10 Claims**



A security door locking system including interiorly and exteriorly key operable locks for disabling the interior and exterior door handles. The interior latch lock buttons are operable to lock the car doors, but are inoperable to unlock the doors. Once the doors are locked, unauthorized access cannot be gained to the automobile by manipulating either the exterior or interior door handles.

3,782,141
FLUSH TYPE DOOR LATCH
Robert E. Doerrfeld, Lake Forest, Ill., assignor to A. L. Hansen Manufacturing Company, Gurnee, Ill.
Filed Oct. 26, 1972, Ser. No. 301,079
Int. Cl. E05b *5/00, 65/02;* **E05c** *1/14*
U.S. Cl. 70—146 **7 Claims**

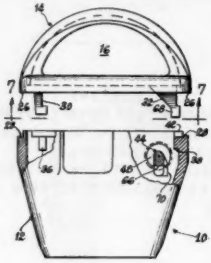


A door latch embodying the principles of this invention is designed to be assembled in a conventional pan-shaped housing having a shallow depth and having a slot provided in the back wall. A guide member is supported on the outside surface of the back wall and open to the slot to slidably receive a lock bolt therein. A compression spring biases the bolt outwardly into the projected latching position. A latching member having a plate portion of a shape conforming to the outer dimensions of the open front face of the door latch housing is pivotally mounted between the opposite side walls of the housing and has a lever portion which projects through the back wall slot and into a recess formed in the lock bolt for retracting the lock bolt against the force of the compression spring. An eject member is also pivotally supported between the side wall housings and includes a push button member which projects through an opening provided in the latching member plate portion. The eject member also includes a nose portion which engages the under surface of the plate portion latching member adjacent its outer free end such that upon an inward force applied to the push button member causes the nose portion to swing outwardly and force the free end of the latching member away from the housing a sufficient distance to be gripped by the user.

3,782,142
HOUSING FOR COIN OPERATED CONSTRUCTIONS
George I. Wimpffen, Wheaton, Ill., assignor to Qonaar Corporation, Elk Grove Village, Ill.
Filed July 31, 1972, Ser. No. 276,704
Int. Cl. E05b *65/52*
U.S. Cl. 70—170 **14 Claims**

A coin handling construction including a housing provided with a cap for closing access to the interior of the construction. Locking means are provided for securing the cap in place on the housing. These locking means comprise a rotatable rod positioned within the housing. First locking elements are mounted on the cap, and second locking elements are mounted on the housing. The locking elements define a sur-

face for inter-engagement of the elements which prevents separation of the cap and housing. The rod is rotatable between a first position for maintaining the locking element surfaces in the engaged condition, and a second position which frees the cap for separation from the housing.



3,782,143

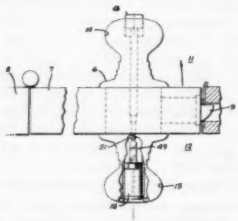
PICKPROOF LOCK CYLINDER

Ernest L. Schlage, Burlingame, Calif., assignor to Schlage Lock Company, San Francisco, Calif.

Filed May 1, 1972, Ser. No. 248,962

Int. Cl. E05b *27/00*

U.S. Cl. 70—362 **22 Claims**



A lockset for installation on a door panel is accessible from the outside as well as from the inside of the door. An outside keyway in a cylinder plug receives a key to turn the plug in a cylinder housing and so actuate the lockset. An inside manual control moves a blocking device from a free position permitting the plug to turn into a blocking position preventing the plug from turning. The blocking device may be a ball moved into and held in a blocking position engaging both the plug and the housing. When not held, the ball stays or is moved out of blocking position upon relative rotation of the plug and housing.

3,782,144

SECURITY LID FOR PLATING CONTAINER

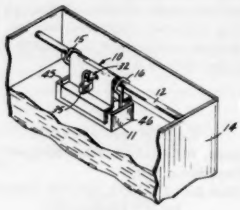
Newell Joseph Gonyo, Milwaukee, and Kenneth Eugene Lower, Oconomowoc, both of Wis., assignors to Globe-Union Inc., Milwaukee, Wis.

Filed Sept. 28, 1972, Ser. No. 292,852

Int. Cl. B65d *55/14*

U.S. Cl. 70—164 **8 Claims**

A security device for a plating container which prevents access to the contents of the container when it is supported from a support in a plating tank. The cover extends substantially over the entire area of the top of the plating container as well as around the supporting means. A flanged tab bar member extends through opposing sides of the cover and a side of the bar member opposite to that which is surrounded by the cover member to prevent the cover member from being moved away from the container. A locking device such as a padlock is employed to secure the flanged tab on the cover member.



3,782,145

STEERING-LOCK, PARTICULARLY FOR AUTOMOTIVE VEHICLES

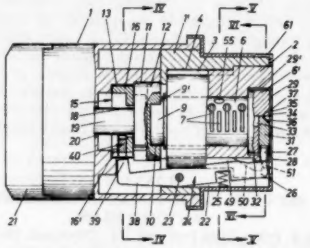
Heinz Wolter, Cologne-Lindenthal, Germany, assignor to Firma Josef Voss KG., Bruhl Bez., Cologne, Germany

Filed Sept. 23, 1971, Ser. No. 183,073

Claims priority, application Germany, Sept. 24, 1970, P 20 47 054.6

Int. Cl. B60r *25/02*

U.S. Cl. 70—186 **3 Claims**



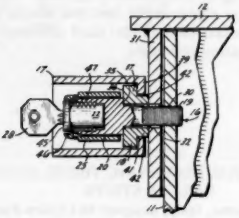
A steering lock equipped with a lock cylinder, in particular for automotive vehicles, which comprises a steering column including a lock housing and a bolt for locking the steering column upon entering its locking position. A spring causes the bolt to enter the locking position. A locking member is mounted in the lock housing and engages resiliently the bolt in the opening position of the latter, for securing the bolt against unintentional locking of the steering column. A lock cylinder is disposed in the lock housing. An intermediate member is disposed in the lock cylinder and has an end portion. A lock key operates tumblers. The locking member is controlled by the lock key by means of the intermediate member, whereby the transfer of the locking member into the bolt releasing position is possible after at least nearly complete removal of the key. A cylinder core is mounted in the lock cylinder to receive the key and rotatable into corresponding locking positions by means of the key. The closing cylinder has a projection capable of being pressed back into the releasing position only with the angularly displaced cylinder core, and a run-up inclination for the end portion is coordinated to the intermediate member.

3,782,146

LOCKING DEVICE

Ronald E. Franke, 7617-30th Ave., Kenosha, Wis.

Filed Oct. 8, 1971, Ser. No. 187,680
Int. Cl. F16b *41/00*
U.S. Cl. 70—232 6 Claims



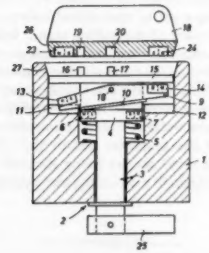
A locking device which provides a means of securing two elements together in a tamperproof manner and is especially adaptable to securing a cap member on a pipe such as a cap on a well casing. A bolt is used to engage a base member through an outer member which is secured on the base with a cover member rotatably held around the head of the bolt to prevent its disengagement and affording a variety of locking methods for securing the bolt in a tamperproof manner.

3,782,147

SECURITY LOCKS

Hermann Hallmann, Ruppichteroth, Germany, assignor to MRT Magnet-Regeltechnik GmbH, Hamburg, Germany

Filed Dec. 7, 1971, Ser. No. 205,654
Claims priority, application Germany, May 11, 1971, P 21 23 168.5
Int. Cl. E05b *47/00*
U.S. Cl. 70—276 7 Claims



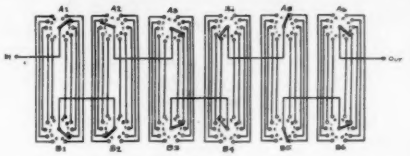
A security lock adapted to be operated by magnetic induction and comprising a case, a bolting unit containing at least one group of magnets displaceably mounted in the case and at least one protective blocking member in the case arranged normally to engage with the bolting unit in detent fashion to prevent operation of the lock, the bolting unit being movable by magnets contained in a key for the lock to a position in which it is no longer engaged by the blocking member and in which operation of the lock is possible.

3,782,148

ELECTRONIC ANTI-THEFT LOCKING SYSTEM

Gerald M. Goldman, Knollwood Extension, Elmsford, N.Y.

Continuation-in-part of Ser. No. 864,801, Oct. 8, 1969, Pat. No. 3,631,301. This application Nov. 18, 1971, Ser. No. 199,883
Int. Cl. E05b *47/04*
U.S. Cl. 70—278 10 Claims



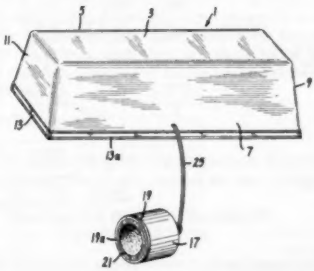
An electronic anti-theft locking system comprising a key for unlocking the mechanism, and a mating key for setting the combination of the system. The mechanism operates using logic principles, but uniquely features electromechanical circuitry. Since no expensive electronics need be used, the system is highly reliable and inexpensive to manufacture. A combination is set in both the unlocking segment of the system, and the combination segment of the system. When the two combinations match, a bolt, solenoid or other output is activated. The combinations in the two segments of the system are formed by a number of SPDT switches. The combination segment of the system may be made like the keyway of the unlocking segment. A key throws the switches in each keyway to form a pattern or combination. Another embodiment of the invention features setting the combination by a set of multi-pole rotary switches. A corresponding panel of multi-pole rotary switches are electrically connected to the other set of switches. A matching combination in both switch panels will effect release of a locking mechanism, or send a signal to an output circuit. A high number of permutations is possible.

3,782,149

PROTECTIVE DEVICE FOR AUTOMOBILE DOOR HANDLE AND LOCKS

Carol Y. Carter, 1408 Gilbert Dr., Charleston, W. Va.

Filed Feb. 17, 1972, Ser. No. 227,195
Int. Cl. E05b *17/18*
U.S. Cl. 70—455 4 Claims



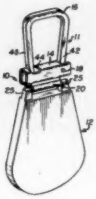
A device for covering automobile door handles and locks thereby protecting them against freezing. This device is defined by a housing having an edge surface comprising magnetic element sealably bonded thereto in order to secure the housing in position to the exterior surface of the automobile door. The housing is internally insulated thereby affording further protection against the elements.

3,782,150

FOB-KEY-RING ASSEMBLY

Kermit Wolpin, Atlantic Beach, N.Y., assignor to Hit Sales Corporation, New York, N.Y.

Filed Mar. 22, 1972, Ser. No. 236,944
Int. Cl. A47g *29/10*
U.S. Cl. 70—459 **9 Claims**



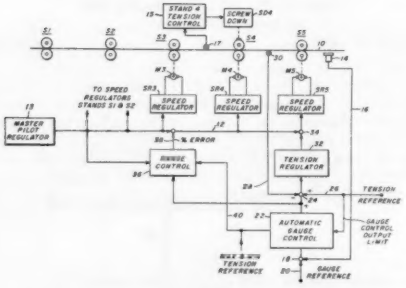
A fob-key-ring assembly and method of joining same in which the fob is provided with an attaching bar extending linearly along one edge of the fob at a spaced distance therefrom, and the key-ring is formed with a base and a key engaging bail portion. A securing sleeve extends from the ring base to encircle and journal the fob attaching bar to provide the fob-key-ring assembly with the fob subject to pivoting with respect to the key ring about the attaching bar axis. Assembly is accomplished by forming the securing sleeve as a longitudinally split cylinder in which the attaching bar is positioned when the sleeve is separated along the split line, and which is closed by passing the assembly beneath a pressure roll.

3,782,151

AUTOMATIC GAUGE CONTROL SYSTEM FOR TANDEM ROLLING MILL

Robert S. Peterson; John W. Cook, both of Williamsville, and Harold B. Bolkey, Lancaster, all of N.Y., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Feb. 29, 1972, Ser. No. 230,298
Int. Cl. B21b *37/06*
U.S. Cl. 72—9 **8 Claims**



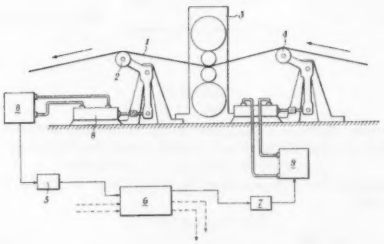
An automatic gauge control system for a multi-stand rolling mill of the type wherein output guage is normally controlled by varying tension in the rolled strip material between the last two stands in the mill, this tension between the last two stands being limited between upper and lower maximum values. Due to variations in mill set-up and incoming product variations, the allowable tension range between the last two stands is not sufficient to adequately control thickness. Accordingly, when the tension reference is exceeded in either direction, range control means are provided for simultaneously changing by the same percentage the speeds of the fourth and fifth stands in a five-stand mill, for example, permitting tension to remain constant between the fourth and fifth stands while varying tension between the third and fourth stands to effect a correction in output gauge. The range control means is automatically turned ON when the magnitude of a guage error correction signal indicates that the tension between the last two stands is outside its permissible range. When the tension between the last two stands is again within limits, the range control holds its speed correction signal to the last two stands (i.e., does not apply it to the last two stands) until activated again by an out-of-range tension condition.

3,782,152

APPARATUS FOR IMPROVING THE FLATNESS OF ROLLED STRIPS

Bruno Sabatini, Rome, Italy, assignor to Centro Sperimentale Metallurgico S.p.A., an Italian Manufacturing Co., Rome, Italy

Filed Apr. 4, 1972, Ser. No. 240,400
Claims priority, application Italy, Apr. 22, 1971, 49910 A/71
Int. Cl. B21b *37/12*
U.S. Cl. 72—9 **1 Claim**



A device for improving the flatness of metal strips during rolling, comprising a set of cylindrical rollers located side by side, located upstream of the rolling stand, independent from one another and with their respective axes parallel to the axes of the rolling cylinders, in such a manner as to correspond to the strip width. The said cylindrical rollers are so arranged as to take positions always parallel, and mutually staggered in the vertical plane by the action of servo-controls coming from detecting means for the planarity and/or the rolling tension in the strip, said last cited means being located downstream of the rolling stand, through a checking and adjusting equipment.

3,782,153

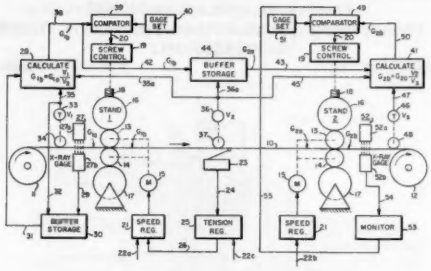
METHOD AND SYSTEM FOR CONTROLLING A TANDEM ROLLING MILL

Amos J. Winchester, Scotia, N.Y., assignor to General Electric Company, Salem, Va.

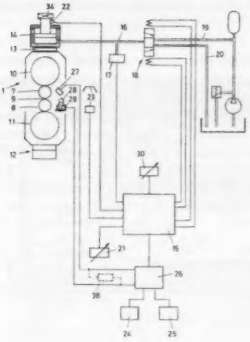
Filed May 3, 1972, Ser. No. 249,955
Int. Cl. B21b *37/02*
U.S. Cl. 72—9 **6 Claims**

An automatic gage control system for a tandem rolling mill wherein separate control loops are provided for the roll open-

ing controls of each stand. Each control loop responds to a feedback signal based on the predicted gage of the rolled strip leaving the associated stand whereby control errors caused by transport lag are eliminated without causing system instability.



more of the stands thereof can be operated as a soft stand in order to reduce the workpiece more or less uniformly across its width to aid in entrance of the front end of the strip into the next stand or coil forming reel, after which the stand can be converted to a hard stand to roll to a desired gauge.



3,782,154

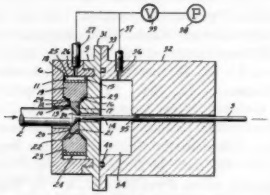
VARIABLE ORIFICE DIE AND CONTROL THEREFOR

Francis Joseph Fuchs, Jr., Princeton Junction, N.J., assignor to Western Electric Company, Incorporated, New York, N.Y.

Division of Ser. No. 122,319, March 9, 1971, Pat. No. 3,719,065. This application Sept. 22, 1972, Ser. No. 291,502

Int. Cl. B21b *37/00*

U.S. Cl. 72—12 **17 Claims**



Fluid-pressure operable segments surrounding rod-deforming die are controlled by wire-diameter sensing device. As die wear occurs, sensing device responds to increased wire diameter and raises fluid pressure to advance segments inwardly against die thereby to constrict die and decrease diameter of die orifice.

3,782,155

PROCESS AND MECHANISM FOR THE OPERATING OF A ROLLING MILL

Wilfried Bald, Hilchenbach-Dahlbruch, Germany, assignor to Siemag Siegener Maschinenbau, GmbH, Hilchembach-Dahlbruch, Germany

Filed Mar. 27, 1972, Ser. No. 238,032

Claims priority, application Germany, Mar. 30, 1971, P 21 15 344.6

Int. Cl. B21b *37/00*

U.S. Cl. 72—14 **8 Claims**

The disclosure of this invention relates to a method and apparatus for operating a tandem rolling mill, wherein one or

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3,782,156

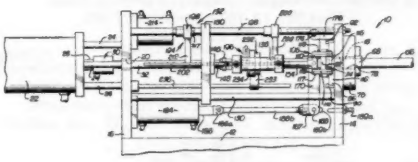
STACKED BELLOWS AND APPARATUS AND METHOD FOR MANUFACTURING THE SAME

Harry Panfill, Los Angeles, Calif., assignor to Master Products Manufacturing Co., Los Angeles, Calif.

Division of Ser. No. 697,058, Jan. 11, 1968, abandoned. This application Jan. 25, 1971, Ser. No. 109,695

Int. Cl. B21d *15/06*

U.S. Cl. 72—59 **2 Claims**



An annularly seamless stacked bellows formed from a metal tube by initially forming convolutions in the tube in a die and crimping the outer edge of each convolution individually while in the die. The convolutions are sharp rolled at their inner edges and then compressed axially to form the seamless stacked bellows.

3,782,157

CUTTER GUIDE FOR PIPE PERFORATING MACHINE

Noah E. Foulks, and Earl Lowry, both of Rt. No. 1, Dodge City, Kans.

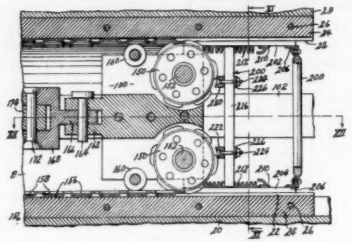
Filed Sept. 20, 1972, Ser. No. 290,578

Int. Cl. B21d *28/28*

U.S. Cl. 72—71 **10 Claims**

In a pipe perforating machine including a cutter head movable through a pipe and cooperating with shear blades carried by the machine frame, a cutter guide consisting of guide ways extending through the pipe and on which the cutter head is slidably mounted, a fixed support for one end of the guide ways, a movable support for the free other end of the guide ways which is detachable from the ways to permit the pipe to be threaded longitudinally over the ways, a fixture detachably mountable on the guide ways at the free end thereof and in-

cluding a roller on an axis transverse to the pipe and engageable with the frame to support the free ends of the ways when said movable support is disengaged, while still permitting the threading of the pipe over the ways, the cutter head including a toothed cutter wheel and being movable outwardly from the



end of the pipe, and a fixture carried by the frame and urged against the end of the pipe, and operable to catch and secure the cutter wheel against rotation as it emerges from the pipe, whereby when it re-enters the pipe, its teeth will always begin cutting perforations at the same distance from the end of the pipe.

3,782,158

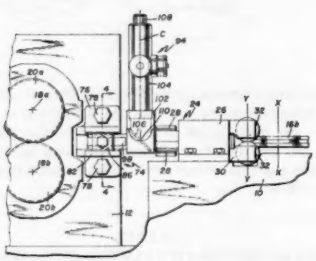
APPARATUS AND METHOD FOR ALIGNING ROLLER ENTRY GUIDES IN A ROLLING MILL

Charles L. MacPherson, Jr., Sterling Junction, Mass., assignor to Morgan Construction Company, Worcester, Mass.

Filed Oct. 13, 1972, Ser. No. 297,251

Int. Cl. B21c *51/00*

U.S. Cl. 72—37 **7 Claims**



An optical device of the type which may be focused along an observed centerline is employed to accurately align roller entry guides in a rolling mill. The optical device is temporarily mounted at a location separate from and preceding that of the roller entry guide to be aligned, with its observed centerline coinciding with the center of the roll pass into which proudct is to be directed by the guide. By thereafter shifting the focus of the optical device to the guide rollers, the gap defined by the guide rollers can be centered with respect to the observed centerline of the optical device by laterally shifting the entire roller entry guide.

3,782,159

ISOSTATIC WORKING PROCESS

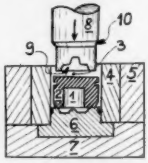
Charles Martinet, Billancourt, France, assignor to Regie Nationale Des Usines Renault, Billancourt and Automobiles Peugot, Paris, France

Filed June 16, 1972, Ser. No. 263,612

Claims priority, application France, June 17, 1971, 7122098

Int. Cl. B22d *22/12*

U.S. Cl. 72—60 **7 Claims**



The invention relates to a process for the working of pieces of metal by high-pressure isostatic die-stamping.

After insertion of the ingot 1 covered with plastic material 2 into the pressure chamber 3 whose walls are constituted by collars 4 and 5 and the floor by the bottom die 6 mounted on the base 7 of the press, the top die 8 is lowered as indicated in FIG. 2, its surface 9 containing the upper shaping impression.

During its re-ascent, the top die 8 takes with it the covering 2 and the article 1, which remains adhering to the top die owing to the fact that its die-stamping seam tightly overlaps the residue of covering material 2 in the clearance 11 between the dies 9 and 6.

3,782,160

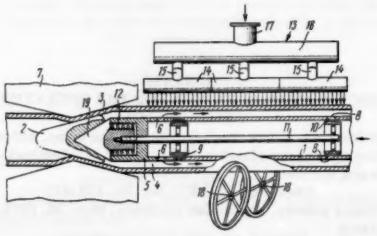
PIPE QUENCHING UNIT

Georgy Naumovich Kheifets, ulitsa Kirova, i, kv. 29; Oskar Alexandrovich Plyatskovsky, ulitsa Kirova, 8, kv. 27; Vladimer Mikhailovich Yankovsky, prospekt Gagarina, 2, kv. 6, all of Dnepropetrovsk; Baba Abbas Ogly Akhmedov, ulitsa Lenina, 23, kv. 14, Sumgait; Zelman Iosifovich Lange, ulitsa Prikaznaya, 11, kv. 12, Dnepropetrovsk; Jury Vasilievich Golubev, ulitsa Azizbekova, 42, kv. 16, Sumgait; Elizaveta Andreevna Solomadina, ulitsa Karavaiva, 21, kv. 16; Vladimir Mikhailovich Statnikov, ulitsa Dnepropetrovskaya, 1a, kv. 40, both of Dnepropetrovsk; Israfil Naftali Ogly Ibragimov, ulitsa Druzhby, 36, kv. 4; Tagi Rza Ogly Guliev, ulitsa Lenina, 23, kv. 12, both of Sumgait, and Jury Zinovievich Porokhovnikov, ulitsa Leningradskaya, 38, kv. 5, Dnepropetrovsk, all of U.S.S.R.

Filed Nov. 13, 1970, Ser. No. 89,373

Int. Cl. B21b *45/02*

U.S. Cl. 72—201 **2 Claims**



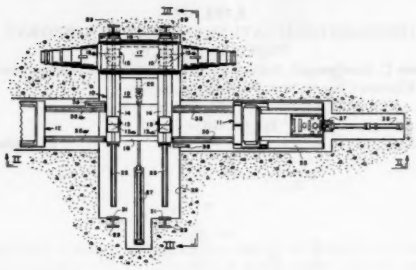
Pipe quenching units used in pipe rolling lines with a plug mill.

3,782,161

APPARATUS FOR DISMANTLING AND ASSEMBLING ROLL ASSEMBLIES FOR A 4-HIGH ROLLING MILL

William S. McGeeney, Pittsburgh; George S. Trapp, Bethel Park, and Leslie Zsamboky, Pittsburgh, all of Pa., assignors to Wean United, Inc., Pittsburgh, Pa.

Filed Apr. 24, 1972, Ser. No. 246,794
Int. Cl. B21b *31/08*
U.S. Cl. 72—239 15 Claims



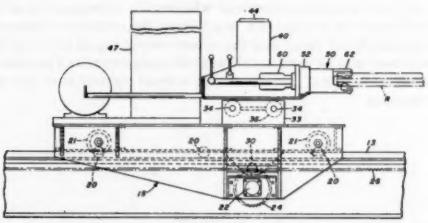
This disclosure is directed to dismantling and assembling operations for work rolls and/or backup rolls, which may include backup rolls with an additional pair of bearing chocks for backup roll bending facilities such as employed in a 4-high rolling mill. The apparatus disclosed includes a pair of extractor cars horizontally displaceable towards and away from each other at spaced-apart locations. Displaced at right angles between these cars is a roll carriage having support saddles for carrying in a horizontal spaced relation a worn roll assembly and a refurbished roll assembly. The roll carriage has stop means employed to align at different times the rolls carried by the saddles in relation to travel of the extractor cars. The extractor cars have guides to assure their mutual alignment with respect to each other and with respect to a roll supported by the saddles.

3,782,162

MANIPULATOR

Haran W. Bullard, Birmingham, Ala., assignor to United States Steel Corporation, Pittsburgh, Pa.

Filed Mar. 9, 1972, Ser. No. 233,241
Int. Cl. B21j *13/12*
U.S. Cl. 72—250 11 Claims



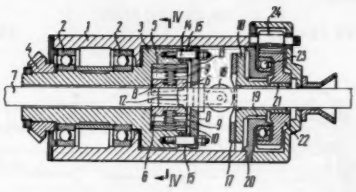
Manipulator apparatus for rotating an elongated article such as a rail about its longitudinal axis and propelling such rail longitudinally. The apparatus includes a carriage, a drive mechanism for the carriage, a rail gripping mechanism, and a rail rotating mechanism. The apparatus is characterized by instant response to fingertip control. Retractable rollers are disclosed for supporting the body of the article.

3,782,163

MECHANISM OF TURNING A BILLET OF TUBE COLD ROLLING MILLS

Sergei Nikolaevich Kozhevnikov, Vystavochnaya ulitsa, 3, kv. 73, Kiev; Arkady Semenovich Tkachenko, prospekt Gagarina, 63, kv. 22, Dnepropetrovsk; Vadim Anatolievich Verderevsky, Volgogradsky prospekt, 171, kv. 35, Moscow; Jury Ivanovich Cherevik, ulitsa Belostotskogo, 114, kv. 1, Dnepropetrovsk; Jury Evgenievich Alexeev, prospekt Pushkina, 25/27, kv. 38, Dnepropetrovsk; Alexandr Grigorievich Bondarenko, ulitsa Universitetskaya, 10, kv. 22, Dnepropetrovsk, and Valery Trofimovich Vyshinsky, prospekt K. Marxa, 34, kv. 41, Dnepropetrovsk, all of U.S.S.R.

Filed Aug. 16, 1972, Ser. No. 281,012
Int. Cl. B21b *39/20, 39/26*
U.S. Cl. 72—250 6 Claims



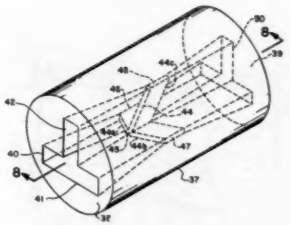
A mechanism having a spindle, one end of which carries a device for clamping a billet. The device comprises a washer having wedges on one end and rollers adapted to interact with a guide block at the other end. The device is provided with expansible cams with chamfers arranged relative to one another so that a space is formed between them for periodical introduction of wedges ensuring a mutual displacements of said cams relative to the spindle axis of rotation.

3,782,164

METAL DRAWING DIE

Theodore S. Felker, 651 Rockhill Ave., Kettering, Ohio

Continuation-in-part of Ser. No. 17,648, March 3, 1970, abandoned, which is a continuation-in-part of Ser. No. 686,064, Nov. 28, 1967, abandoned. This application Feb. 19, 1971, Ser. No. 116,920
Int. Cl. B21c *3/00*
U.S. Cl. 72—274 13 Claims



A method and die for drawing a complex elongated structural member formed with at least one extending fin which consists of drawing said member through a die of substantial complimentary orifice configuration disposed to effect a predetermined gage reduction of said fin, the metal working surface of said die disposed to effect a gage reduction of said fin being inclined in the drawing direction so that said fin is gradually and sequentially engaged by said working surfaces

from its innermost surface to an unrestrained edge. The orifice portion of the die corresponding to said fin extends laterally from the direction of drawing a distance greater than the lateral growth of the fin to avoid any lateral restraint. Also, where said member has a cross-bar which does not terminate on a free edge said working surfaces are optionally inclined in the drawing direction to an intermediary position between the ends of the cross-bar where there is provided in the die orifice or the cross-bar a local relief of restraint to receive metal flow.

3,782,165

RIVETING TONGS FOR BLIND RIVETS

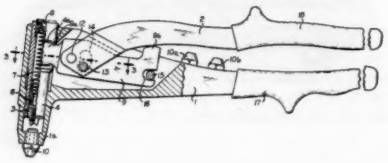
Karl Bosch, Hermaringen/Brenz, Germany, assignor to Gesipa, Gesellschaft Fur Internationale Mit Beschrankter Haftung, Frankfurt am Main, Germany

Filed Apr. 26, 1971, Ser. No. 137,535

Claims priority, application Germany, Apr. 24, 1970, P 20 19 954.6

Int. Cl. B21j *15/34*

U.S. Cl. 72—391 **13 Claims**



Hand riveting tongs for blind rivets which comprise a movable tongs leg and a tongs housing. A receiving mouth piece is provided for a riveting thorn of a blind rivet, and serving as a rotary bearing for the movable tongs leg. A chuck mechanism for gripping said riveting thorn is arranged and an intermediate lever is pivotally connected with the movable tongs, the intermediate lever engages the chuck mechanism and has an abutment for contacting the movable tongs leg.

3,782,166

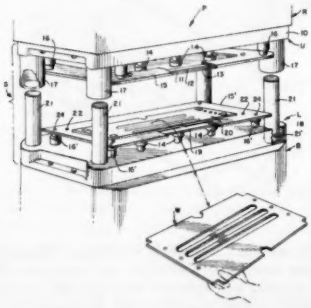
DIE SET ASSEMBLY AND MAGNET MEANS FOR RELEASABLY ATTACHING DIES THEREIN

Lawrence V. Whistler, Jr., 251 Doncaster Rd., and Lawrence V. Whistler, III, 368 Argonne Dr., both of Kenmore, N.Y.

Filed June 9, 1972, Ser. No. 261,402

Int. Cl. B21j *13/02*

U.S. Cl. 72—462 **12 Claims**



A die set assembly is disclosed with magnets provided for releasable attaching the dies in the assembly. A punch holder or shoe is provided with a die shoe spaced therefrom in aligned, confronting relationship. Magnets having opposite ends releasable attach at one end thereof to a punch means of the die set and releasable attach at the other end thereof to the punch holder. Other such magnets releasable attach one end thereof to a die means of the die set and releasably attach the other end thereof to the die shoe. A template arrangement is provided for aligning the die set.

3,782,167

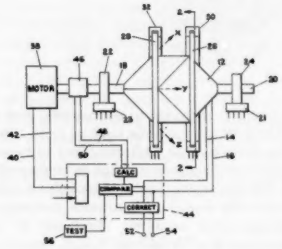
ONBOARD CALIBRATION AND TEST OF AIRBORNE INERTIAL DEVICES

John C. Stuelpnagel, Baltimore, Md., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Nov. 5, 1971, Ser. No. 196,067

Int. Cl. G01c *25/00*

U.S. Cl. 73—1 E **18 Claims**



A system and method for mounting an inertial instrument, such as a reference gyro, an accelerometer triad, or an inertial platform in an aircraft so that the instrument can be tested and calibrated on board the aircraft in its final mounting position without the necessity of test flying the aircraft for such calibration purposes. The inertial instrument is mounted for rotation about an axis angularly displaced with respect to reference axes of the aircraft so that the attitude of the instrument with respect to the reference axes of the aircraft can be changed by rotating the instrument about its mounting axis. The degree of angular movement of the instrument is detected and a theoretical output for the instrument is calculated by an onboard computer. This calculated output is then compared by the computer to the actual instrument output signal. The difference between the calculated signal and the actual signal can then be used to determine whether the instrument is suitable for use on the aircraft. In addition, the difference between the calculated signal and the actual output signal from the instrument can be used to calibrate the instrument and provide a correction signal thereto during normal operation of the instrument.

3,782,168

METHOD AND APPARATUS FOR CALIBRATING AND TESTING PRESSURE RESPONSIVE APPARATUS

Rodney A. Wailes, Houston, Tex., assignor to M & J Valve Company, Houston, Tex.

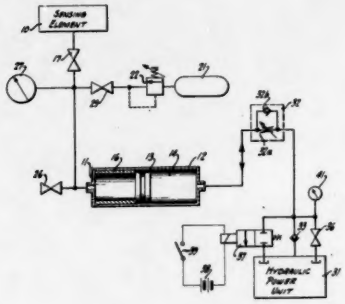
Filed Oct. 2, 1972, Ser. No. 294,349

Int. Cl. G01l *27/00*

U.S. Cl. 73—4 R **8 Claims**

Method and apparatus for generating a gas pressure signal for calibrating and testing line break controls and other pres-

sure responsive apparatus. Gas is confined in a chamber and expanded by increasing the volume of the chamber at a substantially constant rate under the control of hydraulic means. The pressure of the gas drops at a substantially constant rate determined by the setting of the hydraulic means.



3,782,169

REGULATING THE FREQUENCY OF AN OSCILLATORY SYSTEM INCLUDING A BALANCE AND A COILED SPRING

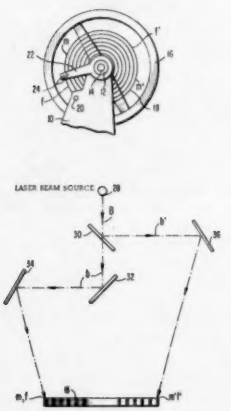
Andre Simon-Vermot, Le Locle, Switzerland, assignor to Les Fabriques d'Assortiments Reunies, Le Locle, Canton of Neuchatel, Switzerland

Continuation-in-part of Ser. No. 52,123, July 2, 1970, abandoned. This application July 13, 1972, Ser. No. 271,361

Claims priority, application Switzerland, July 11, 1971, 10608/71

Int. Cl. G04b *17/16*

U.S. Cl. 73—6 **12 Claims**



The regulation of the frequency of an oscillatory system including a pivotally mounted balance and a coiled spring is effected by modifying one of the cross sectional width or thickness of the spring in correlation to correction necessary to obtain the desired oscillating frequency.

3,782,170

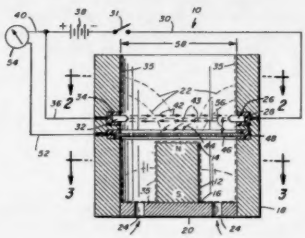
OXYGEN ANALYZER

Howard A. Cramer, Tulsa, Okla., assignor to Lowrance Electronics, Inc., Tulsa, Okla.

Filed Mar. 22, 1972, Ser. No. 237,105

Int. Cl. B01d *11/00;* **G01n** *33/18*

U.S. Cl. 73—19 **10 Claims**



This invention describes a small instrument that can be inserted into a body of water or other liquid to make a determination of the concentration of free dissolved oxygen in the water. It comprises a cylindrical tube with an end plate and a permanent magnet placed coaxial with the tube with its south pole in contact with the end plate. The length of the magnet is approximately one half or less the length of the cylindrical tube. A pair of electrodes are positioned in the wall of the tube, approximately at the middle of the length of the tube. A disc having a number of holes to permit passage of water axially along the inside of the tube, is mounted across the cross section of the tube, closely spaced from the electrodes. When a battery is connected to the electrodes a current will flow. Negative ions will be deflected by the magnetic field toward the magnet and so will be intercepted by the grid. The magnitude of this current can be determined by a meter which is connected in the lead from the grid to the positive pole of the battery.

3,782,171

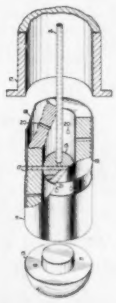
PRECISION HOLE VERIFICATION SYSTEM

Gordon James Watt, 245 Unquowa Rd., Apt. 106, Fairfield, Conn.

Filed Aug. 19, 1971, Ser. No. 172,984

Int. Cl. G01b *13/10*

U.S. Cl. 73—37.9 **7 Claims**



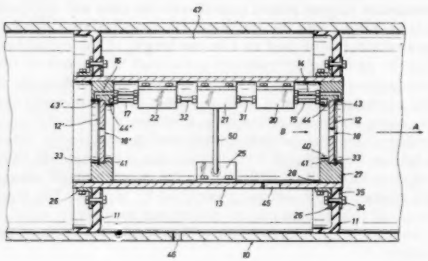
A Flexible Membrane Bearing is used as a gage to sense variations in the surface shape of a hole which acts as the bearing bore, the deformation characteristics of the thin cylindri-

cal tube which constitutes the bearing surface being used to amplify the effects of clearance and out of roundness as sensed by the outlet restrictor edge of the bearing. Secondary sensing means are employed to measure membrane deflections with respect to the bearing shaft at selected points behind the bearing surface using bridge type detection means to correlate said deflections with the different modes of deformation which are characteristic of a thin tube supported at the ends. Secondary measurements are in turn correlated with angular position of the bearing and its axial position in the hole. The system comprises the bearing, power and control, sensors, and means for data handling including display, recording, and processing.

3,782,172
LEAK DETECTOR FOR FLUID CONDUCTORS

John K. McCarron, Houston, Tex., assignor to Shell Oil Company, Houston, Tex.

Filed Sept. 1, 1972, Ser. No. 285,761
Int. Cl. G01m 3/28
U.S. Cl. 73—40.5 R **7 Claims**



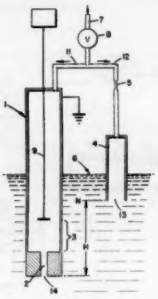
Pipeline leaks are detected by an in-line pig like device having an orifice plate mounted at each end of a frame member and differential pressure measuring means across each orifice at each end, the output of each differential pressure measuring means is in turn fed to another differential pressure sensing means, the output of which is transmitted to a recording means whereby a leak is detected when the duration of any change in a signal recorded corresponds to the difference in the distance between two sealing members disposed at each end of said frame member.

3,782,173
VISCOSIMETER

Cornelis J. Van Vessem, Bergen Op Zoom, and Dirk J. F. Geerdes, Hogeheide, both of Netherlands, assignors to Akzo N.V., Arnhem, Netherlands

Filed June 2, 1972, Ser. No. 259,286
Claims priority, application Netherlands, June 3, 1971, 7107611
Int. Cl. G01n 11/08
U.S. Cl. 73—56 **6 Claims**

An apparatus for measuring the viscosity of a liquid product in a vessel, for instance, a reaction vessel, a dilution vessel and an evaporator, includes a) a measuring cell whose measuring chamber of constant volume is connected to a capillary, b) a conduit system communicating with the measuring chamber and having both a two-way valve for controlling the supply of

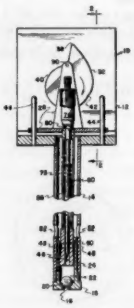


a pressurized gas and a constriction for the pressurized gas, and c) a compensation device to compensate for variations in the liquid level and the gas pressure in the vessel.

3,782,174
ADJUSTABLE VISCOSIMETER

Joseph Varadi, 8655 S.W. 89th Ave., Portland, Oreg., and Thomas C. Easton, 13069 S.W. 63rd Ave., Portland, Oreg.

Filed Aug. 9, 1971, Ser. No. 170,148
Int. Cl. G01n 11/06
U.S. Cl. 73—57 **29 Claims**



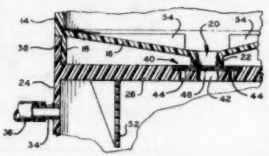
A falling body viscosimeter suitable for measuring and continually monitoring the viscosity of any of a variety of fluids having widely divergent viscosities. A constant speed electric motor drives a cam which alternately elevates and releases a droppable piston within a tubular housing immersed in the particular fluid to be monitored. As the piston is elevated it draws a sample of fluid inside the housing through a check valve. When the piston is released it travels downwardly through the fluid by force of gravity while the fluid is simultaneously displaced upwardly through an orifice in the piston. A timing cam also driven by the constant speed electric motor actuates a switch at a predetermined time interval after the release of the piston, thus establishing a reference time interval. A second switch senses the point in time when the piston has travelled a predetermined distance through the fluid, and an electrical circuit coupled with the two switches generates a signal equal in duration to the difference in the two times. The degree of restriction of the orifice in the falling piston is adjustable by means of a micrometer which varies the size of the

orifice. This allows standardization of the time period required for the piston to fall through any fluid within a wide range of viscosities, irrespective of the viscosity.

3,782,175
APPARATUS FOR TESTING FILTERABLE SOLIDS CONTENT IN LIQUIDS

Michael H. Roman, 18 Eugene St., Lowville, N.Y.

Filed June 5, 1972, Ser. No. 259,800
Int. Cl. B01d *37/00*; **G01n** *33/04*
U.S. Cl. 73—61 R **9 Claims**

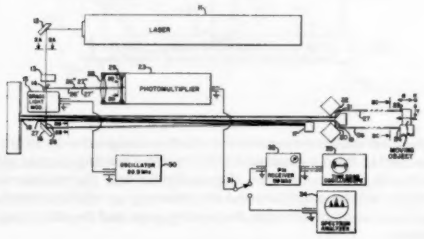


Apparatus for testing the amount of filterable solids in a liquid sample by passing the sample from one receptacle to another through communicating openings in each with a filter element interposed therebetween. The two receptacles are constructed for releasable engagement, and a negative pressure applied to the interior of the second container serves the dual purposes of rapidly drawing the sample through the filter and urging a lip around the opening in the first container into tight engagement with the filter element.

3,782,176
APPARATUS FOR MEASURING VIBRATION IN A MOVING OBJECT

Gordon B. Jacobs, Manlius, N.Y., assignor to General Electric Company, Syracuse, N.Y.

Filed Mar. 30, 1972, Ser. No. 239,680
Int. Cl. G01b *9/02*
U.S. Cl. 73—71.3 **9 Claims**

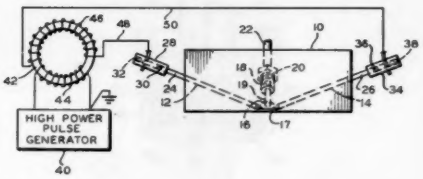


Apparatus is disclosed for measuring small vibrations in an object that is in overall motion in relation to the measuring apparatus. The apparatus employs coherent optical comparator techniques which produce a shift in the optical frequency of a laser beam as a result of motion of one object surface in relation to another object surface. A Bragg modulator is employed in an optical heterodyne technique to convert the frequency terms expressive of object vibration into a convenient electrical format. The apparatus includes means for forming the coherent illumination into a large fan-shaped beam through which the vibrating object may move without imprecision in vibration measurement.

3,782,177
METHOD AND APPARATUS FOR NON-DESTRUCTIVE TESTING

James M. Hoop, Hazel Green, Ala., assignor to The United States of America as represented by the Administrator of the National Aeronautics and Space Adminstration, Washington, D.C.

Filed Apr. 20, 1972, Ser. No. 246,056
Int. Cl. G01n *29/04*
U.S. Cl. 73—71.5 U **2 Claims**

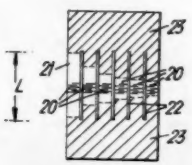


A high voltage is applied to an arc gap adjacent to a test specimen to develop a succession of high-frequency arc discharges. Those high frequency arc discharges generate pulses of ultrasonic energy within the test specimen without requiring the arc discharges to contact that test specimen and without requiring a coupling medium between those arc discharges and that test specimen. Those pulses can be used for detection of flaws, for measurement of certain properties of the test specimen, and for measurement of stresses within that test specimen.

3,782,178
FATIGUE SENSORS

Ernest Derek Reginald Thomas, Banstead, England, assignor to Hawker Siddeley Aviation Limited, Kingston-upon-Thames, Surrey, England

Filed July 28, 1971, Ser. No. 166,775
Claims priority, application Great Britain, July 31, 1970, 37,143/70
Int. Cl. G01n *3/32*
U.S. Cl. 73—88.5 R **4 Claims**



An assembly of strain gauges, constituting a fatigue sensor, in which each strain gauge is mounted on a strain multiplier, in the form of a slotted sub-base, and the multiplication factor of each strain multiplier is different.

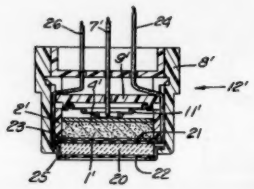
3,782,179
TEMPERATURE AND SALINITY COMPENSATION FOR SOIL WATER SENSITIVE RESISTORS

Lorenzo A. Richards, 4455 Fifth St., Riverside, Calif.

Continuation-in-part of Ser. No. 763,218, Sept. 27, 1968, abandoned. This application Sept. 4, 1970, Ser. No. 69,717
Int. Cl. G01n *13/00*
U.S. Cl. 73—73 **5 Claims**

Relative wetness (matric suction) of soil is measured by two water-sensitive resistors buried closely adjacent one another, where they are similarly exposed to matric suction, salinity

and temperature of the soil. Each resistor incorporates a layer of specially-selected granular fill material compressed between appropriate electrodes, which are connected to an electrical circuit for measuring the ratio of the two resistances. The pore structure of the fill material is more or less filled with soil solution at the same temperature, salinity and matric suction as the solution in the adjacent soil. The fill material of one unit is relatively fine, and that of the other is relatively coarse.



The different particle size causes one unit to have a greater change in the amount of soil solution held by the fill material for a given change of matric suction, than the other, with a correspondingly greater resistance change. Both units have the same fractional resistance change for any given change in temperature and/or salinity of the soil solution, and the ratio of the resistance of the two units is therefore translated by the said circuit into terms of matric suction, free from adverse temperature and salinity effects.

3,782,180

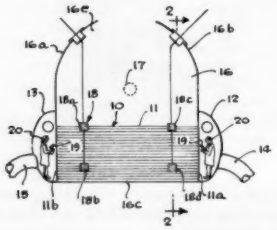
METHOD FOR DETECTING LEAKS IN CONDENSER TUBES

George A. Harris, 7764 W. Fourteenth Ct., Hialeah, Fla.

Continuation-in-part of Ser. No. 161,515, July 12, 1971, which is a division of Ser. No. 736,917, May 20, 1968, Pat. No. 3,592,967. This application Aug. 31, 1971, Ser. No. 176,479

Int. Cl. G01n *29/00*

U.S. Cl. 73—69 **6 Claims**



This application discloses a method of detecting leaks or thin spots in condenser tubes by means of ultrasonic radiations. A number of ultrasonic generators is placed within the chamber or enclosure of the tubes of a condenser, and the generators transmit ultrasonic waves to flood the chamber with energy. A detector sensitive to the frequency of the ultrasonic waves is scanned over the open ends of the condenser tubes. When the detector is at the end of a tube having a hole or thin spot, the intensity of vibrations picked up by the detector will be relatively high, and thus the defective tube is located. A condenser particularly adapted to testing of the tubes thereof by this method is also disclosed.

3,782,181

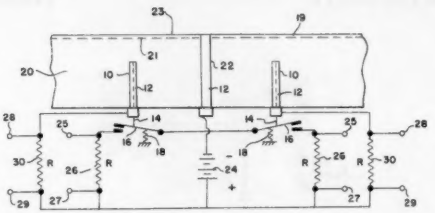
DUAL MEASUREMENT ABLATION SENSOR

Charles A. Gurtler, Yorktown, Va., assignor to The United States of America as represented by the Administrator of the National Aeronautics and Space Administration, Washington, D.C.

Filed Aug. 11, 1971, Ser. No. 170,680

Int. Cl. G01n *17/00*

U.S. Cl. 73—86 **11 Claims**



A dual measurement ablation sensor for measuring both char-interface and surface recession at a point in an ablating material to allow an accurate calculation of the thickness of the char layer. Char-interface recession is indicated by a drop in the resistance to a current passed through the ablation material. Surface recession is indicated by the closing of an electrical circuit when melting causes the release of a spring switch.

3,782,182

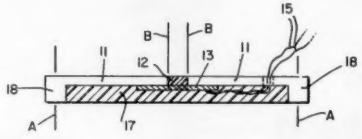
STRAIN MULTIPLIER

James E. Starr, Plymouth, Mich., assignor to Vishay Intertechnology, Inc., Malvern, Pa.

Filed Apr. 29, 1971, Ser. No. 138,522

Int. Cl. G01b *7/18*

U.S. Cl. 73—88.5 R **3 Claims**



A strain multiplier is provided which is designed to be firmly attached to both a structural surface and a sensing gage at all points of contact between the multiplier and the structural surface and the multiplier and the sensing gage while preventing direct contact between the sensing gage and the structural surface.

3,782,183

DETECTION OF PASTER WELDS WITH ACOUSTIC EMISSION

Donald T. O'Connor, Barrington Hills, and David W. Prine, Maywood, both of Ill., assignors to Magnaflux Corporation, Chicago, Ill.

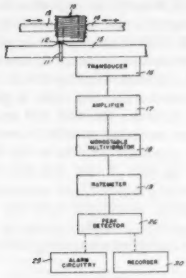
Filed Dec. 2, 1971, Ser. No. 204,110

Int. Cl. G01n *3/32*

U.S. Cl. 73—100 **7 Claims**

Method and apparatus for the nondestructive detection of paster welds wherein the test piece is repeatedly flexed at the weld to be tested, and then any acoustic emission produced by

such flexing, indicative of the presence of a paster weld, is detected. The invention provides for apparatus to convert the



acoustic emission to electrical pulses which may then be integrated to provide a signal dependent upon the amplitude and rate of such acoustic emission.

3,782,184

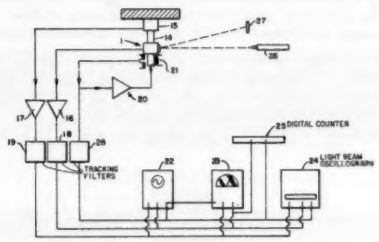
TORQUE TRANSDUCER AND METHOD OF MEASURING TORQUE

Lowell Zane Shuck, Rt. No. 1, Box 361, Rock, W. Va.

Filed Aug. 3, 1971, Ser. No. 168,602

Int. Cl. G01n *3/32*

U.S. Cl. 73—101 **27 Claims**



A torque transducer and method for measuring the complex-shear modulus of very low-modulus materials subjected to sinusoidal, oscillating torques at various freqeuncies wherein means are provided for cancelling from the output signal the inertia effect of the transducer.

3,782,185

RAILWAY TRUCK BRAKE TESTING DEVICE

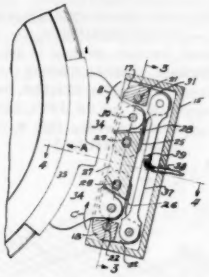
Robert L. Hassenauer, Wilmette; Thomas J. Wolak, Cicero, and George E. Novak, Riverside, all of Ill., assignors to Evans Products Company, Plymouth, Mich.

Filed Aug. 21, 1972, Ser. No. 282,477

Int. Cl. G01l *5/28*

U.S. Cl. 73—121 **5 Claims**

A transducer device for converting a compression force, applied perpendicularly between two relatively sliding objects, into a tension force to be measured by a strain gauge rosette and, more particularly, for measuring a braking force when applied by a railway brake beam to a brake head and shoe unit in a direction normal to the periphery of a rotating vehicle wheel irrespective and independently of a tangential force due to friction between the wheel and the brake shoe unit. There exist devices for measuring a similar force applied normal to a railway wheel when stationary but they do not accurately measure such normal force under dynamic operating conditions



because of the ancillary frictional force between the brake shoe and the rotating wheel. The present invention utilizes one or more bell cranks fulcrumed on a force-transmitting member so as to actuate a strain gauge rosette which can measure a tension force but cannot measure a compression force.

3,782,186

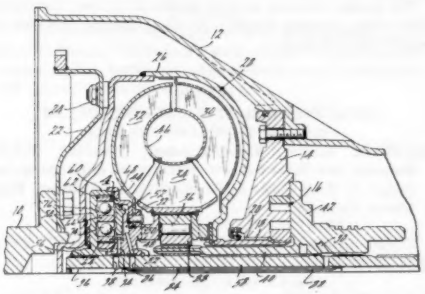
MECHANICAL TORQUE SENSOR FOR A HYDROKINETIC TORQUE CONVERTER

Daniel G. Burch, Westland; Po-Lung Liang, Livonia; Stanley L. Pierce, Jr., Birmingham, and William C. Winn, Inkster, all of Mich., assignors to Ford Motor Company, Dearborn, Mich.

Filed Mar. 15, 1972, Ser. No. 234,740

Int. Cl. G01l *3/14*

U.S. Cl. 73—136 R **10 Claims**



A torque sensor for determining the torque acting on a bladed member of a hydrokinetic torque converter comprising a reaction ring mounted coaxially with respect to the bladed member, inner and outer control rings disposed concentrically with respect to the reaction ring, one of the control rings being connected drivably to the bladed member, the other control ring being connected drivably to a torque delivery shaft, helical grooves formed in one of the control rings and in the adjacent surface of the reaction ring, cam balls registering with the grooves whereby torque delivered through the reaction ring develops an axial thrust component, a fluid pressure reaction piston acting on said reaction ring, the piston and the cooperating annular cylinder defining a pressure chamber and having registering parts that define a flow restricting orifice

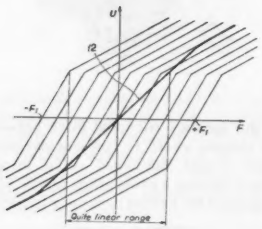
communicating with a low pressure exhaust passage, the degree of restriction developed by the flow restricting orifice being proportional to the thrust acting on the reaction ring whereby a back pressure related to torque is developed in the cylinder.

3,782,187

MAGNETO-ELASTIC TRANSDUCER FOR FORCE MEASUREMENT

Orvar Dahle, Vasteras, Sweden, assignor to Allmanna Svenska Elektriska Aktiebolaget, Vasteras, Sweden

Continuation-in-part of Ser. No. 881,550, Dec. 1, 1969, abandoned. This application Jan. 20, 1972, Ser. No. 219,395
Claims priority, application Sweden, Dec. 9, 1968, 16782/68
Int. Cl. G01l *1/12*
U.S. Cl. 73—141 A **4 Claims**



A magneto-elastic transducer for measuring mechanical forces is constituted by a laminated core of magneto-strictive sheet metal with tubular channels containing excitation and measuring windings. The sheet metal at least in the operative measuring zone of the transducer has residual mechanical stresses, the average value of the magnitude of these stresses being at least of the same order as the magnitude of the stresses induced in the measuring zone when the transducer is subjected to its rated load.

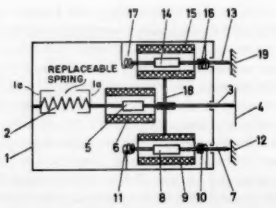
The residual stresses may be produced by heat treatment, cold rolling, drawing, bending, pressing, blasting, radiation or martensite formation.

3,782,188

APPARATUS FOR MEASURING MUSCULAR CONTRACTIONS AND THE LIKE

Karl-Heinz Korber, Kiel-Heikendorf; Hermann Steiert, Bucheim, and Heinz Dehnert, Freiburg, all of Germany, assignors to Hugo Sachs Elektronik KG, Am Bahnhof, Hugstetten, Germany

Filed Nov. 20, 1972, Ser. No. 307,905
Claims priority, application Germany, Dec. 17, 1971, P 21 62 683.5
Int. Cl. A61b *5/05*; G01l *5/02*
U.S. Cl. 73—141 AB **13 Claims**



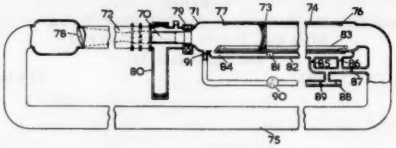
An apparatus is provided for measuring the displacement of an object which is acted upon by a force, e.g., to measure muscular contractions, or to measure thoracic motion during breathing, or to measure tooth mobility. The apparatus comprises a first measuring rod which engages the object to be measured, and a second measuring rod engaging a reference point which is stationary relative to the object being measured. A spring, which may be replaceable to select appropriate spring characteristics, is disposed between one side of a housing and the first measuring rod; and an electrical sensing device is provided to measure forces which act upon the spring. A second electrical sensing device, associated with both the first and second measuring rods, is provided to measure relative motion between the first and second measuring rods. The two rods are mounted parallel to one another, and a third measuring rod, mounted parallel to the first and second rods and placed on the side of said first rod opposite to said second rod, may also be provided, and associated with a third electrical sensing device associated with the first and third measuring rods, to provide a further measure of relative motion between the first and third measuring rods.

3,782,189

WIND TUNNEL

John Yorath Gwynne Evans, Farnham, England, assignor to National Research Development Corporation, London, England

Filed Apr. 12, 1972, Ser. No. 243,345
Int. Cl. G01m *9/00*
U.S. Cl. 73—147 **21 Claims**



A wind tunnel having a main piston in cylinder arrangement upstream of its working section, and driving means for driving the piston to force gas from the cylinder at the downstream side of the piston and through the working section.

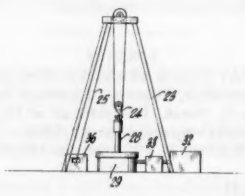
The tunnel is capable of providing flow speeds up to Mach 3.

3,782,190

METHOD AND APPARATUS FOR ROTARY DRILL TESTING

Robert W. Pittman, Sugarland, Tex., assignor to Texaco Inc., New York, N.Y.

Filed Aug. 3, 1972, Ser. No. 277,838
Int. Cl. E21b *47/00*
U.S. Cl. 73—151 **6 Claims**



Rotary drilling method and apparatus for indicating incipient roller cone bearing failure of a bit, or similar downhole conditions. Use is made of signals representing the torque being applied and the weight on the bit, both during drilling,

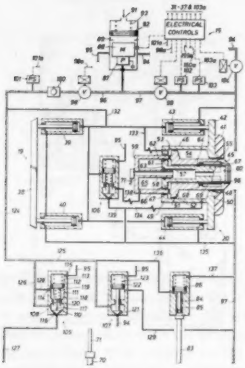
while a constant that is proportional to bit diameter is included in determining the ratio of torque to weight times diameter.

3,782,191

APPARATUS FOR TESTING EARTH FORMATIONS

Frank R. Whitten, Houston, Tex., assignor to Schlumberger Technology Corporation, New York, N.Y.

Filed Dec. 8, 1972, Ser. No. 313,240
Int. Cl. E21b *49/00*
U.S. Cl. 73—155 **21 Claims**



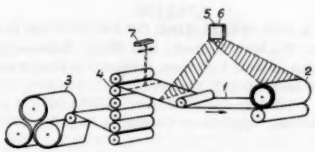
In the representative embodiment of the new and improved apparatus for testing earth formations disclosed herein, fluid-admitting means are selectively extended into sealing engagement with a potentially-producible earth formation and a selectively-operable valve on the fluid-admitting means is opened to place a filtering medium arranged on the fluid-admitting means into communication with the isolated formation without inducing the erosion of loose formation materials as the testing is conducted. Then, when the testing is completed, the fluid-admitting means are retracted and the valve is reclosed in readiness for subsequent testing operations.

3,782,192

MEANS FOR DETERMINING A MAGNITUDE CORRESPONDING TO THE THICKNESS PROFILE OF A PAPER WEB

Henry Sandblom, Vasteras, Sweden, assignor to Allmanna Svenska Elektriska Aktiebolaget, Vasteras, Sweden

Filed Feb. 23, 1972, Ser. No. 228,707
Claims priority, application Sweden, Feb. 25, 1971, 2383/71
Int. Cl. G01m *25/56*
U.S. Cl. 73—159 **9 Claims**



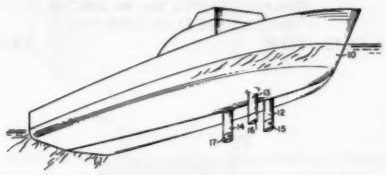
In order to determine the thickness of a web of paper which is being wound on rolls, the temperature profile in the web is measured transversely as the web is rolled up to indicate the thickness. A second temperature profile is also measured at a point located ahead of the roll and a moisture profile is also registered ahead of the roll. Some of these signals or their combinations are used to control the mechanism.

3,782,193

FLOWMETER APPARATUS

Thomas I. Meyer, Severna Park; Thomas N. Shaffer, Silver Spring, and Lawrence G. Wright, Pasadena, all of Md., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed June 6, 1972, Ser. No. 260,227
Int. Cl. G01c *21/10*
U.S. Cl. 73—181 **11 Claims**



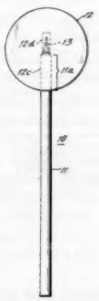
Three posts mounted on the underside of a ship transmit acoustic signals to and from one another for computation of ship's speed. The posts are streamlined for traveling through the water and each includes at the lower end thereof a streamlined housing having a cavity in which is positioned a transducer assembly. The cavity is covered by a thin acoustic window along the streamlined surface. Water is introduced between the transducer assembly and the window for proper signal coupling such that a propagated acoustic signal is properly transmitted to the transducer assembly in another post. Due to the streamlining, the acoustic signals impinge at different angles upon at least two of the posts and the acoustic windows for these two different posts are of different materials and carefully chosen to insure proper signal reception.

3,782,194

ADJUSTABLE TEMPERATURE INDICATORS

Donald E. Brodie, 706 Briarwood Ct.; Mathew Camarota, 904 Gainsway Rd., both of Yardley, and Charles R. Jankowski, 109 Lions Dr., Morrisville, all of Pa.

Filed Sept. 30, 1971, Ser. No. 185,317
Int. Cl. G01k *11/08*
U.S. Cl. 73—343 R **17 Claims**



An adjustable temperature indicator which, in one preferred embodiment, may take the form of a confectionary lollipop candy having a stem imbedded into the head of the

lollipop. A cavity is provided within the lollipop head which houses a temperature sensitive indicator, preferably of a distinctive shape, which is adapted to melt at a predetermined temperature level. Since the temperature sensitive element is completely non-toxic, the confectionary head (including the temperature sensitive element) may be completely ingested without danger of harming the user. Similar structures may be provided in the form of confectionary straws or pacifiers. Confectionary members may be provided with a plurality of temperature sensitive devices, each sensitive to a differing temperature level.

3,782,195

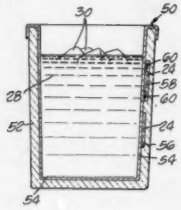
TEMPERATURE INDICATING VESSEL

John S. Meek, 14 Outrigger St., Venice, Calif., and J. Roy Nelson, 8741 Shoreham Dr., Los Angeles, Calif.

Filed May 25, 1972, Ser. No. 256,746

Int. Cl. G01d *11/26*; **G01k** *5/00*

U.S. Cl. 73—343 B **18 Claims**



An open vessel having a sealed chamber in a sidewall thereof. The chamber is filled with a liquid having a predetermined freezing point so that upon filling the vessel with a liquid, the temperature of that liquid is indicated relative to the freezing point of the liquid held in said chamber by the change of state of said liquid within said chamber.

3,782,196

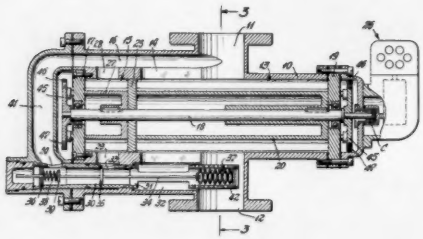
TEMPERATURE COMPENSATED ROTARY GAS METER

Theodore A. St. Clair, Fairfield, Conn., assignor to Textron Inc., Providence, R.I.

Filed Feb. 28, 1972, Ser. No. 229,943

Int. Cl. G01f *3/08*

U.S. Cl. 73—254 **5 Claims**



There is disclosed a rotary type gas meter having a shaft, a primary section and a secondary rotor section proportional to each other in displacement, the rotors of each section being secured to said shaft, and a temperature controlled valve means which diverts the output of the secondary rotor section proportionally to either the outlet of the primary rotor section or back to the inlet of the secondary rotor section, the proportions being such that the total flow of metered gas issuing from said meter is adjusted to a base temperature in accordance with Charles law regardless of the temperature of the flowing gas.

3,782,197

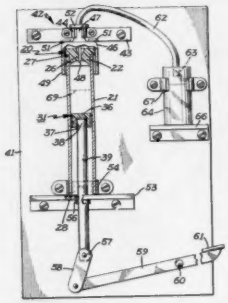
BIOLOGICAL FLUID SAMPLING AND TESTING APPARATUS

Grams, Ralph R., 1404 Primrose Curve, St. Paul, Minn.

Filed May 10, 1971, Ser. No. 141,629

Int. Cl. G01n *1/10*

U.S. Cl. 73—421 R **14 Claims**



Biological fluid sampling and testing apparatus includes a fluid sample container assembly of novel construction, and apparatus for transferring a selected portion of the fluid sample out of the container without the necessity of opening it. The container assembly has a puncturable wall portion through which a cannula needle may be inserted for removal of the sample. The container assembly also has a movable externally accessible delivery member, such as a piston, for urging the selected sample portion out of the container. The apparatus for removal of samples from the container includes a positioning means for a cannula needle, a supporting means for the container assembly, an actuator means for engagement with the delivery member of the container assembly, and moving means connected to at least one of the positioning means, supporting means and actuator means for causing relative movement of the delivery member in the container assembly to urge the selected sample portion out through the cannula needle. Preferred arrangements of delivery members and other closure members for such a container assembly and various control means for the transfer apparatus are also shown, such as control means for selective removal of sample portions of different volumes, monitoring or interuption of sample delivery in response to a predetermined characteristic of the sample, and both manual and automatic starting, stopping, and resetting or reversing means for the apparatus.

3,782,198

DEVICE FOR MEASURING OR DETECTING GAS

Karl-August Wachter, Lubeck, and Horst Rabenecker, Am Muhlenteich, both of Germany, assignors to Dragerwerk Aktiengesellschaft, Lubeck, Germany

Filed Aug. 24, 1972, Ser. No. 283,507

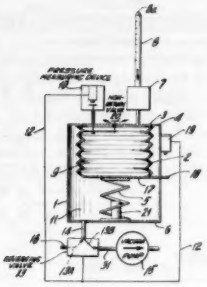
Claims priority, application Germany, Aug. 30, 1971, P 21 43 282.6

Int. Cl. G01n *1/24*

U.S. Cl. 73—421.5 R **12 Claims**

A device for measuring or detecting gas comprises a mounting base having a sample connection for connecting an opened vessel thereto which is adapted to contain a sample to be tested. A container carries a collapsible bellows therein and

the bellows has one wall which is common to a container wall. A reversing valve is connected to the container and also to a pump to selectively connect the pump to the container or connect the container to atmosphere. The container includes a check valve for permitting discharge of gas therefrom and a switch is actuated by movement of the bellows to switch the reversing valve in accordance with whether it is desired to



have the pump or the atmosphere connected into the container. An under pressure measuring device is connected into the container and is also connected to the reversing valve to switch the valve in accordance with the pressure sensed in the bellows or the container. This control works in conjunction with the control which operates upon expansion and contraction of the bellows to operate the reversing valve.

3,782,199

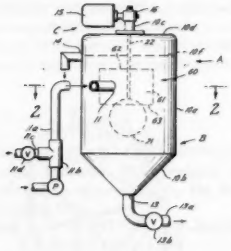
MUD WEIGHING UNIT

Leo A. Bell, 35 Traderee Ct., Shannon, Ireland

Filed Sept. 8, 1971, Ser. No. 178,714

Int. Cl. G01n *9/08*

U.S. Cl. 73—434 **5 Claims**



A new and improved device for determining the density of flowing drilling mud which includes a pneumatic level transmitter mounted on a vessel through which the drilling mud flows. The pneumatic level transmitter senses the buoyant force exerted on a displacer element immersed in the drilling fluid flowing through the vessel; and a special flow directing means is mounted in the housing at the inlet in order to control and direct the flow of drilling mud into a substantially circular pattern to eliminate substantially all forces except buoyancy which might otherwise act on the displacer element by the flowing drilling mud.

3,782,200

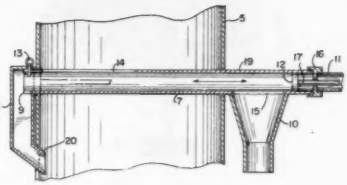
SAMPLER

Melvin L. Maas, Quincy, Ill., assignor to Moorman Manufacturing Company, Quincy, Ill.

Filed Nov. 24, 1972, Ser. No. 309,351

Int. Cl. G01n *1/20*

U.S. Cl. 73—422 R **7 Claims**



An automatic sampling apparatus for location in a hopper, conduit or pipe through which a particulate material flows includes a sample and apparatus support tube which extends either into a hopper, conduit or pipe through one side opening only or through aligned openings in opposite sides of the hopper, conduit or pipe, with the tube receiving support from the hopper, conduit or pipe at the openings therein. The sample and support tube on the plunger end projects a substantial distance from the hopper, conduit or pipe so as to provide space for a sample discharge opening in the projecting end emptying into a sample discharge chute. The opposing end of the sample tube which projects into or, if desired, completely through the hopper, conduit or pipe is provided with a depending clean-out chute. When the clean-out chute is disposed within a hopper, conduit or pipe filled with particulate material it serves to prevent packing of the particulate material by the clean-out stroke of the piston. When the sample and support tube projects through opposite sides of a hopper, conduit or tube the clean-out chute and the sample discharge chute by engaging the outside of the hopper, conduit or pipe on opposite sides adjacent each of the aligned openings therein prevent axial shifting of the sample tube and apparatus. The reciprocating plunger or piston which is provided can be actuated by an air cylinder mounted on the projecting end of the sample tube which carries the sample discharge chute. The portion of the sample tube within the hopper, conduit or pipe has one or more sample inlet openings in the upstream side with respect to flowing material to be sampled. In operation the air cylinder is preferably timer-actuated and in its outward stroke the piston expels through the clean-out chute material that has collected in the sample tube and on the return stroke withdraws and discharges through the sample discharge opening a sample that has collected through the sample inlet opening or openings.

3,782,201

METHOD AND APPARATUS FOR STABILIZING A SPHERICAL BEARING

Frederick L. Fitts, Ann Arbor, Mich., assignor to Balance Technology, Inc., Ann Arbor, Mich.

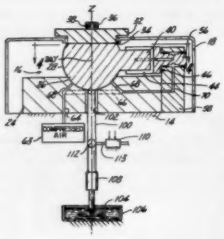
Filed Apr. 20, 1972, Ser. No. 245,813

Int. Cl. G01m *1/04, 1/12*

U.S. Cl. 73—455 **15 Claims**

A segmented part such as a fan blade is supported on a spherical air bearing so that unbalance in the blade causes the bearing to tilt. Displacement of the bearing is sensed by a pair of orthogonally oriented transducers, and the displacement signals therefrom are processed to provide a direct readout of the two specific blades to which weight must be added or subtracted and a direct readout of the amount of unbalance cor-

rection required at each blade. The air bearing has a particular stop arrangement to prevent rotation of the bearing while permitting the bearing to tilt along the orthogonal axes of the



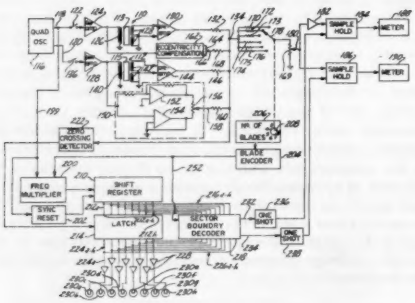
transducers. The circuit that processes the transducer displacement signals is selectively adjustable so that direct readings can be obtained for parts having different numbers of segments.

3,782,202

METHOD AND APPARATUS FOR BALANCING SEGMENTED PARTS

Ronald W. Anderson, Champaign, Ill., and William B. Henry, Chelsea, Mich., assignors to Balance Technology, Inc., Ann Arbor, Mich.

Filed Apr. 20, 1972, Ser. No. 245,814
Int. Cl. G01m 1/12
U.S. Cl. 73—455 **26 Claims**



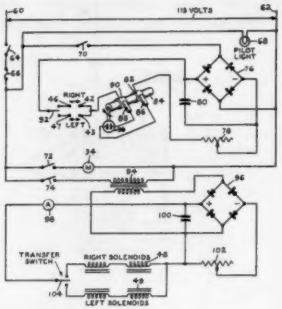
A segmented part such as a fan blade is supported on a spherical air bearing so that unbalance in the blade causes the bearing to tilt. Displacement of the bearing is sensed by a pair of orthogonally oriented transducers, and the displacement signals therefrom are processed to provide a direct readout of the two specific blades to which weight must be added or subtracted and a direct readout of the amount of unbalance correction required at each blade. The air bearing has a particular stop arrangement to prevent rotation of the bearing while permitting the bearing to tilt along the orthogonal axes of the transducers. The circuit that processes the transducer displacement signals is selectively adjustable so that direct readings can be obtained for parts having different numbers of segments.

3,782,203

DYNAMIC BALANCING APPARATUS

Donald D. Dalrymple, North Warren, Pa., assignor to National Forge Company, Irvine, Pa.

Filed Jan. 12, 1972, Ser. No. 217,358
Int. Cl. G01m 1/20
U.S. Cl. 73—468 **11 Claims**



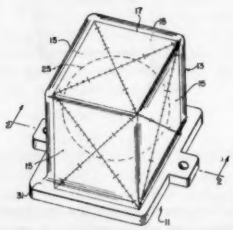
A work piece is rotated by a motor through a flexible connection while being supported on rollers mounted on a frame flexibly mounted for horizontal movement. The horizontal vibration of the frame due to the unbalance of the rotated work piece opens and closes a pair of electrical contacts and thereby energizes a light rotated in synchronism with the work piece. The angular orientation at which the light is lit during its revolution indicates the angular position of the unbalance of the work piece. The amount of unbalance is determined by measuring the amount of current required by a pair of rigidly mounted solenoids which are energized to grip a projection of the frame and suppress the vibration, as indicated when the lamp ceases to flash.

3,782,204

APPARATUS AND METHODS FOR RECORDING ACCELERATION

Harry Lynn Boardman, Clayton, Mo., assignor to H. L. Boardman Inc., Clayton, Mo.

Filed July 7, 1971, Ser. No. 160,311
Int. Cl. G01p 15/04
U.S. Cl. 73—492 **1 Claim**



A peak-recording accelerometer including a substantially rigid receptacle with a plurality of interior surfaces and including means for mounting the receptacle for exposure to acceleration. A liner for the receptacle includes panels closely conforming to interior surfaces of the receptacle. The panels are imprintable with a pattern to record acceleration. A resilient mass cooperable with the liner in the receptacle is shaped and dimensioned for fitting, when free of acceleration,

in point contact with the panels of the liner. The mass is deformable for uniform increased area contact of its surface with at least one panel of the liner as a continuous function of the mass acceleration. Printing media is positioned between said surface and said liner panel so that the increased area contact imprints on the panel a pattern whose dimensions are a precise predetermined function of the peak acceleration experienced by the mass.

3,782,205

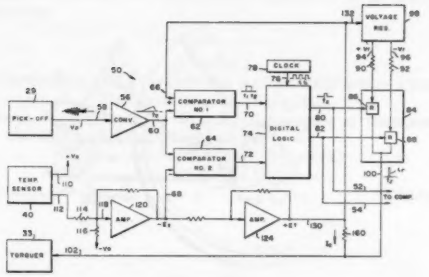
TEMPERATURE COMPENSATED DIGITAL INERTIAL SENSOR

James C. Fletcher, Administrator of the National Aeronautics and Space Administration with respect to an invention of, and Patrick J. Hand, Altadena, Calif., assignors to The United States of America as represented by the National Aeronautics & Space Administration, Washington, D.C.

Filed Nov. 9, 1972, Ser. No. 305,012

Int. Cl. G01p *15/08*; **G01c** *19/30*

U.S. Cl. 73—497 **8 Claims**



A circuit of the type which maintains the inertial element of a gyroscope or accelerometer at a constant position by delivering pulses to a rebalancing motor, wherein the circuit compensates for temperature changes by utilizing a temperature sensor that varies the threshold of inertial element movement required to generate a rebalance pulse, to thereby compensate for changes in viscosity of the floatation fluid. The output of the temperature sensor also varies the output level of the current source, to compensate for changes in the strength of the magnets of the rebalancing motor, and the sensor also provides a small signal to the rebalance motor to provide a temperature-dependent compensation for fixed drift or fixed bias.

3,782,206

VORTEX LINEAR ACCELEROMETER

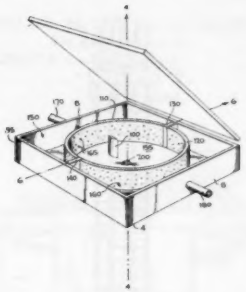
Arthur J. Ostdiek, Wheaton, Md., assignor to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed June 13, 1972, Ser. No. 262,404

Int. Cl. G01p *15/02*

U.S. Cl. 73—515 **6 Claims**

A vortex linear accelerometer comprising an axisymmetric chamber, two bilaterally symmetric plena opening into said chamber, and a drain located in the center of said chamber with an airfoil pickoff located nearby and mounted within the chamber. The two plena supply fluids of different densities to the chamber. The chamber is in the shape of a flat cylinder and the plena supply fluid through the sidewall of said cylinder. When acceleration occurs along the bilateral axis of symmetry of the accelerometer a vortex is generated due to the unequal body forces acting upon the two different fluids. The intensity of the vortex is a function of the component of acceleration parallel to this axis of symmetry. The airfoil pickoff measures the streamline angle of the vortex within the chamber. The output of the pickoff is thus a function of this component. For applications involving angular motion about



the cavity axis the angular component measured by the pickoff is cancelled by operating two accelerometers back to back.

3,782,207

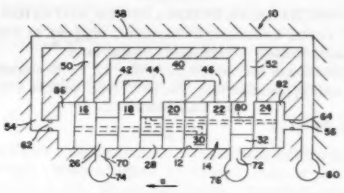
SPOOL AND SLEEVE PNEUMATIC ACCELEROMETER

Harold J. Straut, Jr., 1532 Neola Tr., Winter Park, Fla., and Raymond E. Weber, 27 Zabriskie St., Jersey City, N.J.

Filed Sept. 14, 1972, Ser. No. 289,022

Int. Cl. G01p *15/02*

U.S. Cl. 73—515 **4 Claims**



A pneumatic accelerometer employing a five land spool operating in a cylinder, wherein, the fluidic output of the assembly is linear with the amount and direction of the displacement of the spool within the cylinder.

ERRATUM

For Class 73—457 see:
Patent No. 3,782,217

3,782,208

INTERMITTENT DRIVE

Earl Hacker, Rt. 1, Long Branch Rd., Beattyville, Ky.

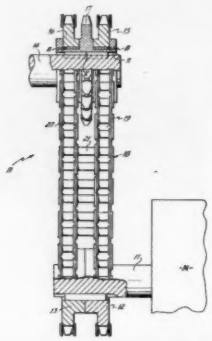
Filed Sept. 24, 1971, Ser. No. 183,453

Int. Cl. F16h *27/00*

U.S. Cl. 74—112 **12 Claims**

A chain and sprocket drive for transposing rotary motion to intermittent rotary motion. The drive interconnects two shafts, one of which is an input shaft and has two drive sprockets keyed thereto and the other of which is an output

shaft and has three sprockets mounted thereon. The outer two of the three sprockets are idler sprockets driven from the two drive sprockets on the input shaft. The inner or central



sprocket of the three sprockets is keyed to the output shaft and is intermittently driven by a link connected between the two endless chains.

3,782,209

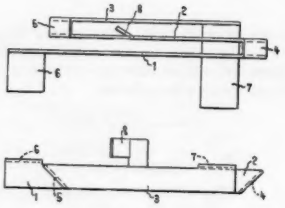
MECHANICAL RESONATOR OF ROTATION

Robert Favre, Lausanne, Switzerland, assignor to Fabriques Movado, Canton of Neuchatel, Switzerland

Continuation of Ser. No. 39,785, May 22, 1970, abandoned. This application Mar. 14, 1972, Ser. No. 234,571

Int. Cl. F16h *27/02*

U.S. Cl. 74—142 **6 Claims**



A mechanical resonator of rotation, particularly for use in a timepiece, comprising an oscillatory mass having an axis of symmetry, a support, spring means connecting said mass to said support for oscillation of the latter about a rotational axis substantially coinciding with said axis of symmetry, said spring means including leaf springs consisting of rectilinear active sections interconnected by connecting elements adapted to be very rigid with respect to the effective stresses of oscillation and determining the useful length of said active sections; preferably, said springs are obtained by suitably folding single cut out pieces.

3,782,210

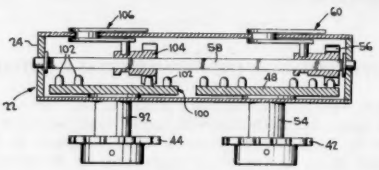
CHANGEABLE SPEED GEAR ATTACHMENT FOR BICYCLES

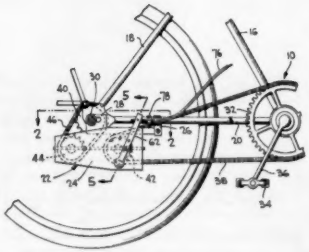
Quanah P. Holleman, 146 E. Bayview Blvd., Norfolk, Va.

Filed Oct. 4, 1972, Ser. No. 294,878

Int. Cl. F16h *9/00*

U.S. Cl. 74—217 B **16 Claims**





A changeable speed gear attachment for mounting on a standard bicycle without the need for modification of the bicycle is disclosed. The attachment includes a housing which mounts on the frame of the bicycle and includes a driving pinwheel gear having several adjacent concentric rows of teeth, a driven pinwheel gear having at least one row of teeth, a driving pinion gear operating off the driving pinwheel gear and slidably mounted so as to selectively engage one of the several rows of teeth, and a driven pinion gear which is driven by the driving pinion gear and which, in turn, drives the driven pinwheel gear. The pinwheel gears are each connected to a sprocket externally of the housing and the sprockets are connected to the sprockets of the bicycle by means of conventional bicycle chains.

3,782,211

MULTIPLE GROOVE PULLEY CONSTRUCTION

James D. Campbell, Jr., Lombard, and Joseph E. Maurey, Chicago, both of Ill., assignors to Maurey Manufacturing Corporation, Chicago, Ill.

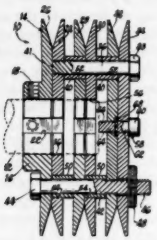
Filed Feb. 9, 1972, Ser. No. 224,817

Int. Cl. F16h *55/52*

U.S. Cl. 74—230.17 C **7 Claims**

An adjustable pulley construction of the type having a plurality of flange members associated in pairs and mounted on a shaft. The respective pairs each define a bolt receiving groove, and one flange member of a pair is tied to a corresponding flange member of every other pair whereby the flange members are divided into first and second sets. The outermost pair of flange members is located beyond the end of the shaft, and

a screw is associated with this pair of flange members and aligned coaxially with the shaft. Rotation of the screw operates to change the relative positions of the associated



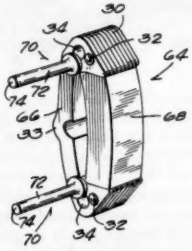
flange members. The means tying the sets of flange members together provide for simultaneous adjustment of all pulley grooves.

3,782,212

COMBINED SHEAVE AND FLYWHEEL ASSEMBLY AND METHOD OF MAKING SAME

Harry M. Ward, III, Waukegan, Ill., assignor to Outboard Marine Corporation, Waukegan, Ill.

Filed Dec. 29, 1972, Ser. No. 319,775
Int. Cl. F16h *55/36*
U.S. Cl. 74—230.3 **3 Claims**



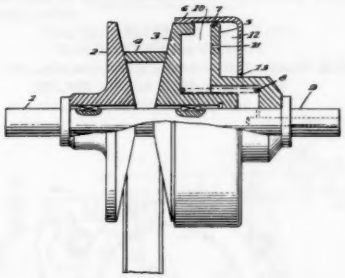
A combined sheave and flywheel assembly which includes a smooth, imperforate radially inclined surface for driving a transmission drive belt and which further includes one or more electrical components, such as a pole shoe and magnet assembly, cast in place as an integral part of the flywheel assembly. Also a method for die casting such a combined sheave and flywheel assembly whereby the cast-in-place electrical component is accurately held in a predetermined position within the die cavity by the casting die without producing a hole or opening which can cause excessive wear of the transmission drive belt on the inclined belt-driving surface thereof. The electrical component is installed onto one or more locator pins extending from one die section into the die cavity and includes one or more elongated rivet means which extend through the die cavity to the other die section and become cast in as an integral part of the flywheel assembly casting. When the die sections are moved to the casting position, the die section which defines the inclined driving surface of the flywheel assembly removably engages the outer end of the rivet means and cooperates with the rivet means and the locator pins to clamp the electrical component in place.

3,782,213

INFINITELY VARIABLE CONE PULLEY TRANSMISSION

Manfred Rattunde, Bad Homburg v.d.H., Germany, assignor to Werner Reimers Kommanditgesellschaft, Bad Homburg, Germany

Filed June 16, 1972, Ser. No. 263,599
Int. Cl. F16h *55/22*
U.S. Cl. 74—230.17 F **7 Claims**



In an infinitely variable cone pulley transmission with one cone fixed on a shaft and the other slidable thereon but rotatable therewith, a pressure chamber is formed connected with the movable disc. This is separated into two spaces by a partition secured on the shaft. Pressure fluid is supplied to the space nearest the pulley disc, and is allowed to pass through a throttled passage into the space remote from the pulley disc and to escape therefrom through a narrow annular slot in the portion of the space closest to the shaft axis.

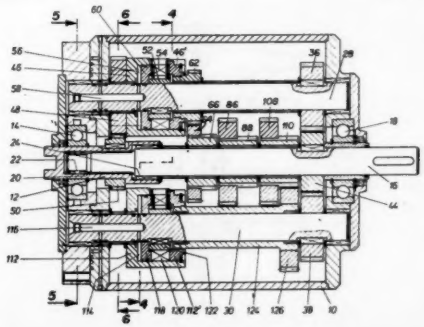
The axial pressure caused by centrifugal force in the first space is at least substantially counter-balanced by the axial force produced by the centrifugal force in the second space. Further, the continuous flow of pressure fluid prevents the build-up of localized heating in the pressure chamber.

3,782,214

REMOTELY CONTROLLABLE CHANGE SPEED GEAR

Ilie Chivari, Wanne-Eickel, Germany, assignor to Firma Hackforth & Co. Maschinen-Fabrik, Wanne-Eickel, Germany

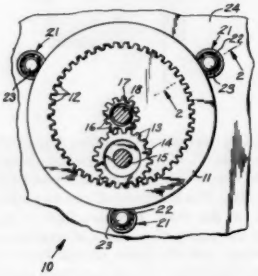
Filed Dec. 10, 1971, Ser. No. 206,599
Claims priority, application Germany, Dec. 10, 1970, P 20 60 787.8
Int. Cl. F16h *3/08*
U.S. Cl. 74—331 **15 Claims**



Input and output shafts are positioned coaxially in a gear box housing with four auxiliary shafts positioned about and

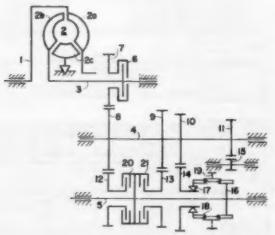
parallel thereto. A gear on the output shaft is engaged by respective gears on the auxiliary shafts. Clutches are associated with each of the auxiliary shafts and have their output parts engaging the respective auxiliary shafts. The input part of one clutch is gear connected to the input shaft and the remaining input parts are in series in a speed reducing gear train from the input part of the one clutch. The gear train is rotatably mounted on the output shaft and the various auxiliary shafts.

3,782,215
FREELY MOUNTED GEAR
Robert E. Moody, 7202 Gammage, Houston, Tex.
Filed July 6, 1972, Ser. No. 269,303
Int. Cl. F16h *57/00, 1/20*
U.S. Cl. 74—410 **1 Claim**



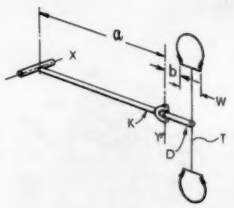
A ring gear arrangement providing an uninterrupted source of power for mechanical and electrical applications. This arrangement consists primarily of a toothed ring supported in rolling engagement with rotatable bearings positioned in an equally spaced apart relationship with each other, the bearings being supported upon a plate or the like.

3,782,216
SPEED CHANGE CONTROL SYSTEM FOR AUTOMATIC TRANSMISSION
Ichio Sakai, Aichi-ken, Japan, assignor to Toyota Jidosha Kogyo Kabushiki Kaisha, Aichi-ken, Japan
Filed Apr. 10, 1972, Ser. No. 242,406
Claims priority, application Japan, Apr. 28, 1971, 46/27550
Int. Cl. F16h *3/08;* **B60k** *21/06;* **F16d** *25/063*
U.S. Cl. 74—364 **5 Claims**



In a speed change control system for automatic transmissions, clutch assemblies are provided for second speed and third speed, respectively, and they are arranged in back-to-back relationship in a power transmission arrangement for changing the transmission gear ratio. The clutch assemblies share some components in common. In addition the system includes a control circuit for engaging or disengaging the clutches by oil pressure, a 2-3 shift valve provided in the control circuit for stopping oil feed into the clutch assembly for second speed while feeding oil into the clutch assembly for third speed when shifting from second speed to third speed, an oil exhaust port provided in a servo oil chamber in the clutch assembly for second speed, and a drum element provided in the clutch assembly for third speed. The drum element is displaced by the pressing force of an assembly of plates and discs for opening the oil exhaust port when the clutch assembly for third speed is engaged, so that the actuation of the clutch assembly for second speed, which is disengaged when second to third speed shifting is effected, is synchronized with the pressing action of the assembly of plates and discs in the clutch assembly for third speed which is engaged when the shifting is effected.

3,782,217
BALANCING OF WHEEL/TYRE ASSEMBLIES
William Wortley, Birmingham, England, assignor to Dunlop Limited, London, England
Filed Apr. 14, 1972, Ser. No. 244,123
Claims priority, application Great Britain, Apr. 22, 1971, 10,754/71
Int. Cl. G01m *1/28*
U.S. Cl. 73—457 **7 Claims**

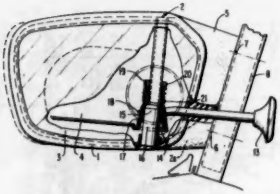


A method of balancing a tyre and wheel assembly which comprises rotating said assembly and measuring the kinetic and dynamic out of balance forces so generated. A known proportion of the correction weight for the kinetic unbalance so measured is then applied to one flange of the wheel and the kinetic and dynamic out of balance forces measured again. The new measurements are compared with the initial ones to determine the total correction weight required and its distribution between the wheel rim flanges. The method is particularly suited to on-the-car balancing.

3,782,218
ADJUSTABLE AND TILTABLE REARVIEW MIRROR ESPECIALLY FOR PASSENGER MOTOR VEHICLES
Gunter Gmeiner, Sindelfingen; Christian Grabner, Maichingen; Gerhard Sigmund, Stuttgart, and Rudolf Binder, Schonaich, all of Germany, assignors to Daimler-Benz Aktiengesellschaft, Stuttgart, Germany
Filed July 27, 1971, Ser. No. 166,435
Claims priority, application Germany, July 27, 1970, P 20 37 101.1
Int. Cl. G05g *1/00*
U.S. Cl. 74—491 **26 Claims**

An outside rearview mirror adapted to be remotely adjusted from within the vehicle interior space and adapted to be tilted by pivoting in a direction opposite the driving direction in case

of an accident, especially for passenger motor vehicles in which a hinge for a housing is provided that is adapted to be secured at the vehicle; a mirror glass support which is supported in the housing, is adapted to be adjusted by way of an actuating lever connected therewith and projecting into the vehicle interior space.

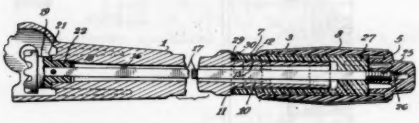


3,782,219

FRICTION LOCK FOR OUTBOARD MOTOR THROTTLE HAND GRIP

Robert J. Beck; Wilbert Heikkinen, and Robert T. Johnson, all of Oshkash, Wis., assignors to The Brunswick Corporation, Skokie, Ill.

Filed Apr. 21, 1972, Ser. No. 246,339
Int. Cl. G05g *5/06*
U.S. Cl. 74—531 **6 Claims**



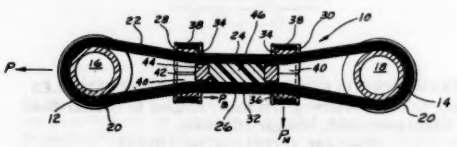
The invention is a friction lock which operates upon a throttle hand grip mounted on the steering arm of an outboard motor. An end cap threaded axially with respect to the steering arm urges the hand grip against the shoulder on the steering arm, thereby creating friction to hold the throttle grip in a selected position.

3,782,220

TENSION-TORSION TIE BAR

Richard J. Ditlinger, South Bend, Ind., assignor to The Bendix Corporation, South Bend, Ind.

Filed May 18, 1972, Ser. No. 254,515
Int. Cl. F16c *7/04*
U.S. Cl. 74—579 R **6 Claims**



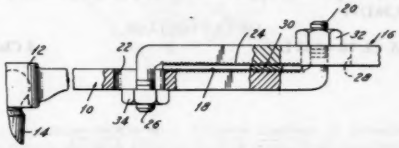
A laminated tie bar or coupling particularly adapted to interconnect a helicopter rotor arm and rotor blade is provided with a pair of spaced-apart end bushings interconnected by an endless belt. A pair of annular clips encircle the belt adjacent the bushings to draw opposite sides of the belt into parallel alignment. Each clip abuts an associated transverse bar or pin extending between the belt sides and attached to an adjacent end bushing by a layer of flexible strands or wires wound around the end bushing and bar or pin. The bars or pins hold the clips apart and permit twisting of the coupling about an axis extending through the end bushings.

3,782,221

ADJUSTABLE TIE ROD LINK

Edward C. Nalodka, Dearborn Heights, and Thomas R. Street, Taylor, both of Mich., assignors to Ford Motor Company, Dearborn, Mich.

Filed Dec. 5, 1972, Ser. No. 312,403
Int. Cl. F16c *7/06*
U.S. Cl. 74—586 **11 Claims**



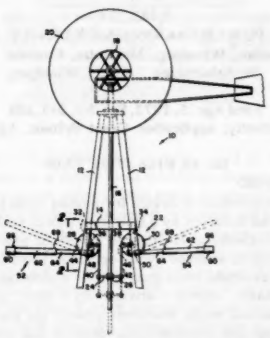
An adjustable tie rod assembly for a motor vehicle steering linkage system is constructed in accordance with one embodiment of the invention by providing transverse serrations near the ends of each of two rod parts. Each rod has an end portion that is bent 90 degrees to its serrated portion and each bent end is provided with screw threads. Each rod has an axially extending slot disposed inwardly of its serrated portion. The two rods are assembled by extending the bent end of each rod through the slot of the other rod so that the serrated portions are placed in face-to-face relationship. A soft metal shim is interposed between the two serrated portions. The rods are then adjusted axially for length and nuts are tightened on the threaded ends so that the serrated portions bite into the soft metal shim and lock the two rods together to form an assembly of fixed length.

3,782,222

COUNTERBALANCING ASSEMBLY FOR AIR MOTIVATED DEVICE

John L. Berggren, 1148 Clark Ave., Billings, Mont.

Continuation-in-part of Ser. No. 85,432, Oct. 30, 1970, abandoned. This application Oct. 10, 1972, Ser. No. 295,841
Int. Cl. F03d *11/00*
U.S. Cl. 74—590 **8 Claims**



This invention is a counterbalancing assembly for air motivated devices such as windmills, for use in pumping water

or other liquids from wells. The assembly includes arms extending outwardly from opposite sides of the reciprocating lifting rod of the windmill. The arms are affixed to rotatable discs, each of which is provided with a flexible member secured to the disc periphery and extending to a cross member secured to the lifting rod and movable therewith. In order to counterbalance the weight of the lifting rod and the material being pumped, the arms of the assembly are constructed of telescopic sections to increase or decrease the arm length to effect the desired leverage.

3,782,223

POWER TRANSMISSION SYSTEMS

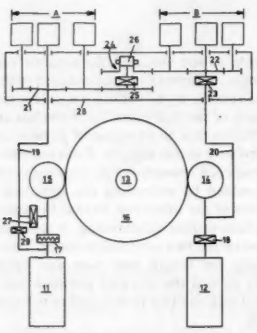
Kenneth Watson, Yeovil, England, assignor to Westland Aircraft Limited, Yeovil, Somerset, England

Filed May 15, 1972, Ser. No. 253,239

Claims priority, application Great Britain, June 1, 1971, 18,361/71

Int. Cl. F16h *37/06*

U.S. Cl. 74—665 L **5 Claims**



A power transmission system for a twin engine helicopter includes drive shafts and gearing connecting the engines to a rotor drive shaft and two gear trains, each gear train being arranged to drive a set of helicopter accessories. The transmission is arranged so that at least one of the gear trains remains operational through a wide range of failure conditions in both the engines and the transmission system.

3,782,224

POWER TRANSMISSION DEVICE

Michael Stasiuk, Winnipeg, Manitoba, Canada, assignor to Versatile Manufacturing, Ltd., Winnipeg, Manitoba, Canada

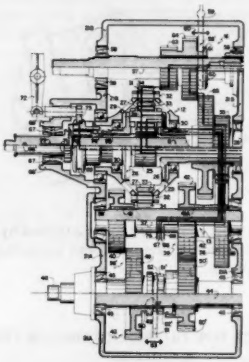
Filed Apr. 5, 1972, Ser. No. 241,248

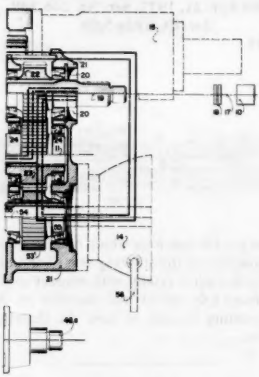
Claims priority, application Great Britain, Apr. 6, 1971, 8,834/71

Int. Cl. F16h *47/04, 37/00*

U.S. Cl. 74—687 **12 Claims**

A power transmission device for mobile units such as tractors or the like is driven by a source of power such as a diesel engine and includes at least three modes of power transmission which can be selected by the operator. It includes a planetary train, a constant mesh gear box, an hydrostatic pump and an hydrostatic motor driven by said pump. The hydromechanical mode transmits power via the pump and motor through the planetary gear train to the constant mesh gear box and hence to the output shaft. The basic mechanical mode transmits power via the planetary train directly to the constant mesh gear box. The hydrostatic mode transmits power from the hydrostatic motor to the constant mesh gear box. A power takeoff can be operatively connected to these three modes and means are provided to shift the power takeoff





connecting means to a portion of the planetary gear train casing so that a further mechanical road gear or mode is provided which has a higher speed range than the basic mechanical mode.

3,782,225

TRANSMISSION ESPECIALLY FOR MOTOR VEHICLES

Fritz Grabow, Muhlweg, Germany, assignor to Daimler-Benz Aktiengesellschaft, Stuttgart, Germany

Filed Apr. 2, 1971, Ser. No. 130,612

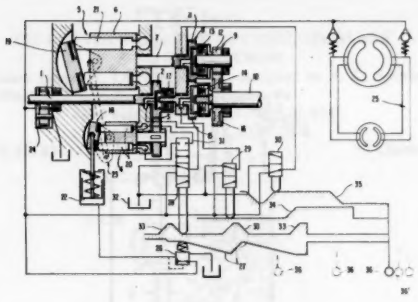
Claims priority, application Germany, Apr. 3, 1970, P 20 15 945.9

Int. Cl. F16h *47/02*

U.S. Cl. 74—720 **18 Claims**

A transmission, especially for motor vehicles, which includes an infinitely variable converter adjoining an engine shaft and several pairs of meshing gears following the con-

verter which are adapted to be selectively engaged or disengaged by way of shifting clutches, whereby one shifting clutch is adapted to connect the engine shaft with a pair of meshing



gears, while actually selectively engaged, and the converter, such as a hydrostatic converter, is adapted to be internally uncoupled.

3,782,226

MACHINE TOOLS

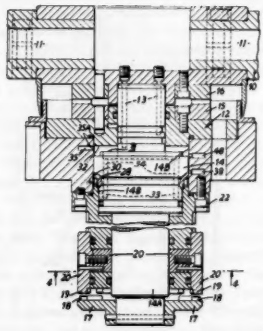
Gordon A. Boyd, Dorking, and Franz Berger, West Wickham, both of England, assignors to Autologic Limited, Surrey, England

Filed Jan. 25, 1971, Ser. No. 109,284

Claims priority, application Great Britain, Feb. 3, 1970, 5,200/70

Int. Cl. B23b *29/32*

U.S. Cl. 74—821 **19 Claims**



A tool turret assembly for a machine tool which is movable to present different tools at an operating station. The tool turret mounted on an operating member which is rotatable between tool presenting positions and is also axially displaceable. The operating member is adapted to engage respectively in its axially displaced positions, members for rotating the turret through an angle corresponding to the angle between tool presenting positions, and members for accurately locating the turret in its tool presenting positions. A hydrostatic bearing is provided under the operating member during rotation. Axial displacement is collinear with the axis of rotation of the members for rotating the turret.

3,782,227

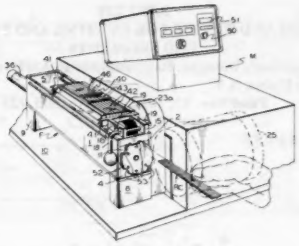
INSULATION-SLITTING AND STRIPPING MACHINE

Cornelis Teunis Veenendaal, Milwaukie, Oreg., assignor to Tektronix, Inc., Beaverton, Oreg.

Filed July 6, 1971, Ser. No. 159,792

Int. Cl. H02g *1/12*

U.S. Cl. 81—9.51 **10 Claims**



An insulation-slitting and stripping machine is provided with slitting members adjacent feeding means to slit insulated-conductor means of an electrical cable means so that they are separated from each other as the feeding means feeds a predetermined length of electrical cable means therein. A splaying means is disposed adjacent the slitting members to space the separated free ends from one another. Insulation-stripping means is movable relative to the slit and splayed free insulated-conductors means to strip insulation from the insulated-conductors means and to cut them at predetermined lengths.

3,782,228

METHOD AND MACHINE FOR SCALPING ROD STOCK

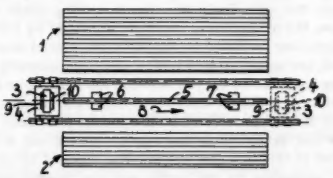
Hans Lindemann, Lindenstrasse 39, Grossdornbert, and Wolfgang Lindemann, Im Johannisthal 41, Aachen, both of Germany

Filed Apr. 13, 1971, Ser. No. 133,493

Claims priority, application Germany, May 4, 1970, P 20 21 812.6

Int. Cl. B23b *5/00, 3/00*

U.S. Cl. 82—20 **11 Claims**



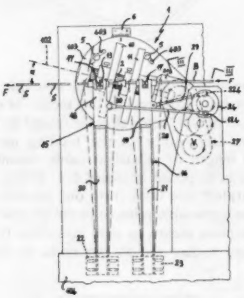
A method and machine for scalping solid or tubular rod stock by means of a cutter head revolving about and movable along a nonrotatable piece of said stock, in which this machine is also provided with at least one flaw testing apparatus which detects the possible presence of flaws in the piece of stock at least during a first scalping run of the cutter head so that during one or more subsequent runs the flaws may be eliminated. The longitudinal movement of the cutter head is preferably reversible at the end of each run and the machine is in this case provided with two flaw testing apparatus each of which searches for flaws remaining in the workpiece after just being scalped in the respective run. Each cutter in the cutter head must then be provided with left and right cutting edges and preferably with an intermediate smoothing edge. If the

machine is provided with a flaw testing apparatus which not only detects flaws during the first scalping run of the cutter head but also determines the depth at least of the deepest flaw, the cutters will be adjusted accordingly at the end of the first run, so that during the second scalping run a layer of a sufficient thickness will be removed from the workpiece so as to leave it at least substantially flawless.

3,782,229
SYSTEM AND DEVICE FOR CUTTING AND REDUCING ROD SEGMENTS

Athos Cristiani, Bologna, Italy, assignor to AMF Incorporated, White Plains, N.Y.

Filed Nov. 13, 1972, Ser. No. 305,925
Int. Cl. A24c *05/12*
U.S. Cl. 83—37 **10 Claims**



A method and apparatus for making cigarettes by forming a continuous cigarette rod and continuously advancing the formed rod axially, cutting segments of predetermined lengths each equal to multiple cigarettes from the advancing rod, and cutting each segment into cigarettes of equal predetermined lengths before the next succeeding segment is cut from the continuous rod.

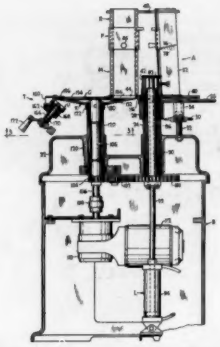
Two rotatable discs are mounted on an angularly adjustable base, the discs being mutually parallel, spaced from each other and mounted on a shaft that is vertically inclined with respect to a horizontally advancing cigarette rod. A vertical plane passing through the shaft is parallel to a vertical plane passing through the rod. Each disc has a cutting blade mounted thereon, the blades being angularly displaced by 180°. A pair of ledgers are mounted on supports, are spaced axially along the rod, are separated by a hollow guide for receiving and supporting a portion of the rod between the ledgers, and are connected to gear driven links which cause the supports and the ledgers thereon to reciprocate in opposite directions along the rod. When the upstream disc encounters the rod, it cuts off a segment of two cigarette lengths. The segment advances so as to be supported by the guide and the downstream ledger where the second disc cuts the same into two cigarettes before the next segment is cut by the upstream disc.

3,782,230
COMESTIBLE SLICING APPARATUS

Louis A. Bettcher, Amherst, Ohio, assignor to Bettcher Industries, Inc., Birmingham, Ohio

Continuation-in-part of Ser. No. 785,088, Dec. 19, 1968, Pat. No. 3,587,689, which is a continuation-in-part of Ser. No. 561,180, June 28, 1966, Pat. No. 3,434,519. This application Jan. 5, 1972, Ser. No. 215,462
Int. Cl. B26d *7/06, 7/12*
U.S. Cl. 83—174.1 **11 Claims**

Slicing apparatus having a magazine with upright product receptacles for carrying comestible workbodies in a circular path past a rotating knife in a table recess to sever slices from the bottom of workbodies, product followers slidable on receptacle guides to urge workbodies toward the knife, table

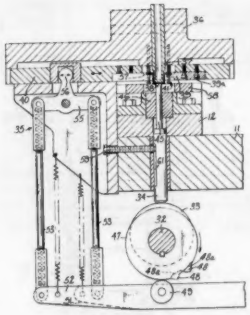


height adjustment for controlling the thickness of slices being severed, a fluid-pressure actuated ram for lifting the product followers, a unitary plastic or like guard for the knife, and knife sharpening apparatus carried by the guard.

3,782,231
PIERCING ASSEMBLY

Louis F. Jannetty, 78 Lynwood Dr., Cheshire, Conn.

Continuation-in-part of Ser. No. 105,247, Jan. 11, 1971, abandoned. This application July 21, 1972, Ser. No. 273,697
Int. Cl. B26d *5/08*
U.S. Cl. 83—143 **11 Claims**



A piercing assembly is incorporated as a work station in a cam-operated machine such as a cam eyelet machine by mounting in the machine frame the combination of: a movable pin adapted to engage a work piece, an advancing cam and a pair of lifting cams mounted on a rotatable shaft, a cam follower to the advancing cam adapted to engage and move the pin, a slide carrying a punch for piercing the work piece, a centrally pivoted arm having a head for engaging and reciprocating the slide, a pair of lever arms linked one to each end of the centrally pivoted arm, and a pair of cam followers mounted one on each of the lever arms for alternate engagement with the lifting cams; the cam surfaces of the advancing cam and the pair of lifting cams being positioned such that en-

gagement of the advancing cam and the lifting cams with their respective cam followers causes piercing of the work piece by the punch when the work piece has been engaged by the pin, alternating with disengagement of the pin from the work piece when the punch is withdrawn.

3,782,232

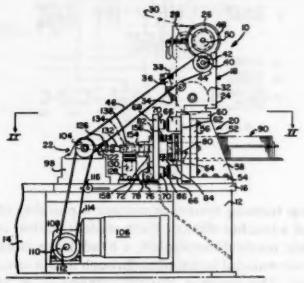
DIE CUTTER DRIVE FOR AN ENVELOPE BLANK FORMING MACHINE

Walter Oggoian, Libertyville, Ill., assignor to F. L. Smithe Machine Company, Inc., Duncansville, Pa.

Filed Feb. 22, 1972, Ser. No. 227,864

Int. Cl. B31b *1/16;* **B26d** *5/08*

U.S. Cl. 83—236 **11 Claims**



The envelope blank forming machine has a web feeder unit mounted above a die cutting unit. The web feeder unit is arranged to intermittently feed web material into a die cutter in the die cutter unit. One of the die plates in the die cutter unit is movably supported on a base and is reciprocally driven by a die cutter drive. A drive motor is positioned beneath the base and transmits rotation to a drive shaft rotatably mounted on the base in spaced relation to the movable die plate. The drive shaft has an enlarged hub portion connected to one end with a radially spaced bore therein. An arm member extends forwardly from the drive shaft and is connected at one end to the end of the drive shaft by a pin positioned in the radially spaced bore so that upon rotation of the drive shaft the arm member reciprocates on the base portion. A support member extends upwardly from the base between the drive shaft and movable die plate. A lever member is pivotally connected at one end to the support member and at the other end to the forwardly extending arm so that the reciprocation of the arm member upon rotation of the drive shaft pivots the lever member and reciprocates the die plate through a yoke connection to the movable die plate. The lever member has a forwardly extending connector member that is pivotally pinned to the yoke member. The upwardly extending support for the lever serves as a fulcrum of a second class lever and the distance between the fulcrum and the connection to the forwardly extending arm increases the torque imparted to the lever by the arm member. The movable die plate has rollers that are rotatably supported on the base portion to support the die plate.

3,782,233

ROTATABLE CUTTER MECHANISM FOR CUTTING DIFFERENT LENGTH NOTCHES IN A MOVING WEB

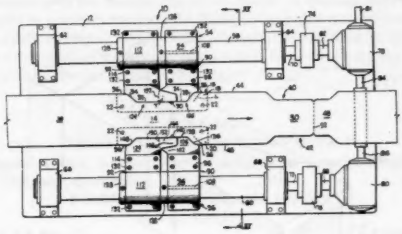
Herbert W. Helm, Hollidaysburg, Pa., assignor to F. L. Smithe Machine Company, Inc., Duncansville, Pa.

Filed Nov. 12, 1971, Ser. No. 198,232

Int. Cl. B26d *3/14*

U.S. Cl. 83—356.3 **6 Claims**

The cutter mechanism includes a fixed cutter having side notches therein over which either a sheet, strip or an endless web of paper travels at a preselected speed. A pair of rotatable cutters are mounted on shafts for rotation in timed relation to each other and to the speed of the sheet, strip or web. The rotatable cutters are positioned on opposite sides of the fixed cutter. Each of the rotatable cutters has a first radially extending cutter blade and a second radially extending cutter blade



arranged longitudinally along the shaft and adjacent to each other. One of the radially extending blades is adjustable angularly relative to the other. The relative radial angle between the blades determines the length of the notch cut by the respective rotatable cutters in the side of the sheet, strip or web.

3,782,234

GRIPPING SHAFT

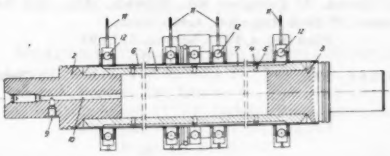
Alexander Rodach, Pforzheim, Germany, assignor to Frau Irma Ungerer, Pforzheim, Germany

Filed Dec. 3, 1971, Ser. No. 204,602

Claims priority, application Germany, May 27, 1971, P 21 26 407.3

Int. Cl. B26d *1/12*

U.S. Cl. 83—665 **5 Claims**



A clamping shaft for clamping a rotating element comprises a generally closed tubular core having an inlet adapted to be connected to a pressure fluid source, and radial bore means communicating with said inlet and open on the outside peripheral surface of said core. The shaft also comprises an expansible clamping sleeve enclosing the outside peripheral surface of said core and firmly and tightly joined thereto at least at two spaced-apart portions of its length to define around said core at least one annular space, which communicates with said radial bore means.

3,782,235

MITER BOX

Michael P. Curcio, 50 Lind Rd., Totowa, N.J.

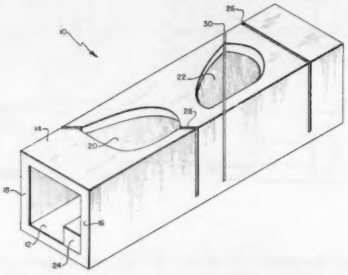
Filed Dec. 29, 1972, Ser. No. 319,547

Int. Cl. B27g *5/02*

U.S. Cl. 83—762 **2 Claims**

The present invention relates to an improved miter box for use by carpenters and others in making miter joints, particu-

larly for mitering picture, cove, casing and base mouldings. The general improvement lies in substituting a square-shaped box for the conventional U-shaped form, and making this miter box in the form of a single, integrally moulded, transparent plastic unit. This structure with its inherent rigidity gives durability, strength and precision to the box itself, all of which aid in achieving precision in the mitering of joints. A support bar is placed along one inside base edge to support



hand-held, angularly disposed mouldings and L-shaped corner mouldings in particular at proper cutting angles. Cut-outs are provided in the top for holding work pieces in place. The use of a transparent plastic provides full visibility of the work piece to the user. It also improves the durability of the miter box and increases precision in the cutting or mitering because the saw will not cut easily into the saw cutting guides of its side walls.

3,782,236

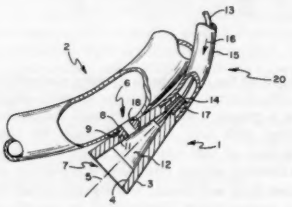
WATER VALVE FOR HORN-TYPE MUSICAL INSTRUMENT

Ernest Shalek, 33 Evergreen Rd., Billerica, Mass., and Roy Trafton, 75 Birch Ridge Rd., Acton, Mass.

Filed Dec. 4, 1972, Ser. No. 311,697

Int. Cl. G10d *7/10*

U.S. Cl. 84—397 **10 Claims**



A water valve on a horn-type musical instrument attached to the outside of the instrument includes a tapered plug in a tapered sleeve alongside a hole in the instrument tube which permits water in the tube to escape out of the tapered sleeve when the plug uncovers the hole. The plug is controlled by a mechanical linkage which leads to a position on the instrument where the player normally holds the instrument with one hand permitting the player to manipulate the valve without moving his hand from the playing position on the instrument.

3,782,237

GROUP TRAINING SYSTEMS UTILIZING ELECTRONIC MUSICAL INSTRUMENTS

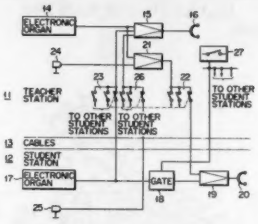
Eisaku Okamoto, Shizuoka, Japan, assignor to Nippon Gakki Seizo Kabushiki Kaisha, Hamamatsu-shi, Shizuoka-ken, Japan

Filed Dec. 5, 1972, Ser. No. 312,266

Claims priority, application Japan, Dec. 28, 1971, 47/4342

Int. Cl. G09b *15/00*

U.S. Cl. 84—470 **7 Claims**



The group training system comprises a plurality of student stations and a teacher station. Each student station comprises an electronic musical instrument, a headphone connected to the electronic musical instrument through a gate circuit, and a microphone. The teacher station comprises an electronic musical instrument, a headphone connected to this electronic musical instrument, a switch for supplying disenabling signal to the gate circuits of all student stations, a microphone, and other switches for selectively supplying the outputs from the microphone and musical instrument of the teacher station to respective headphones of the student stations and the outputs from respective electronic musical instruments and microphones of the student stations to the headphone of the teacher station, whereby one to one training as well as simultaneous training of a group of students can be attained by interrupting the conduction between the musical instruments of the student stations and the headphones thereof through the operation of the disenabling switch.

3,782,238

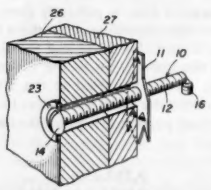
SELF-DRILLING TOGGLE BOLT ASSEMBLY

Constantine D. Polos, 1955 Cheshire Ln., Wheaton, Ill.

Filed Mar. 2, 1972, Ser. No. 231,117

Int. Cl. F16b *35/04*

U.S. Cl. 85—3 R **4 Claims**



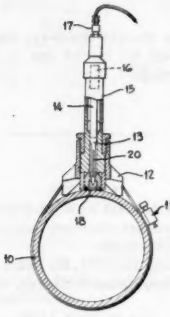
A self-drilling toggle bolt assembly comprises an elongated toggle head provided at one end with a cutting head used for drilling a hole through the surface on which the assembly is to be installed. The toggle head is equipped with a threaded hole intermediate its ends through which a bolt having a short threaded transverse member attached to its end is passed.

Supported by the transverse member, the toggle head can be swung from a position parallel to the bolt to one in which the toggle head is perpendicular to the bolt. In use, the toggle bolt assembly, with the toggle head parallel to the bolt, is passed through a hole previously drilled in the mounting surface using the toggle head as a bit. The toggle head is then manipulated to a perpendicular position, permitting the threads of the bolt to engage the threaded opening of the head, thereby permitting the entire assembly to be drawn up tightly.

3,782,239
PENETRATING ARRANGEMENT

Reyburn Wick, Southampton, and Bruce Travor, Holland, both of Pa., assignors to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed Jan. 4, 1972, Ser. No. 215,330
Int. Cl. F42b *33/00*
U.S. Cl. 86—1 A **2 Claims**

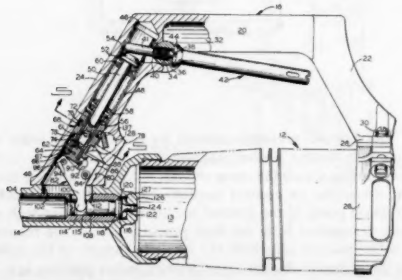


A metal penetrating arrangement in which a steel projectile containing a sample contents is penetrated by a propellant actuated steel needle provided with an electro-deposited indium plating or coating. The coating has a 0.0001 to 0.0002 inch thickness that surrounds the entire needle for penetration of the projectile wall without fusion therebetween.

3,782,240
FIRING MECHANISM FOR MORTARS

James T. Feldmaier, Latham, N.Y., assignor to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed Jan. 3, 1973, Ser. No. 320,798
Int. Cl. F41f *1/06*
U.S. Cl. 89—1 J **18 Claims**

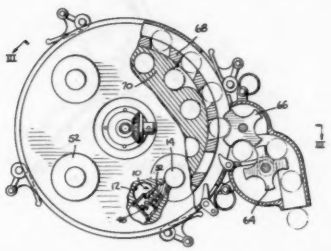


A firing mechanism for a hand-held mortar is located in the rear leg of a carrying handle secured to the exterior of the barrel in the vicinity of the firing chamber therein and comprises a trigger pivotally mounted in the handle so as to project from the upper end of the rear leg, a firing pin slidably disposed in the barrel for movement into and out of the firing chamber, and a connection between the trigger and firing pin for transferring movement of one to the other so that the position of the trigger serves as a visual indicator of the position of the firing pin in order to prevent unintended firing of a mortar round dropped into the muzzle end of the barrel. A manual selector serves to position and lock the firing pin in either a fixed firing or a safe retracted arrangement. In addition, the selector may be rotated to an inactive position which frees the firing pin to respond to the actuation of the trigger.

3,782,241
ZERO ULLAGE INJECTION VALVE

Eugene Ashley, Burlington, Vt., assignor to General Electric Company, Burlington, Vt.

Filed Oct. 28, 1971, Ser. No. 193,351
Int. Cl. F41j *1/04*
U.S. Cl. 89—7 **6 Claims**

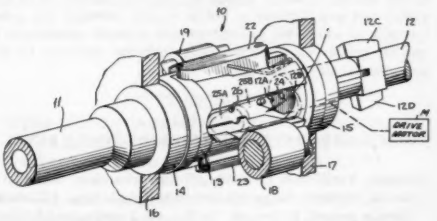


A valve has a conical passageway which is obturated by a conical spool. The spool is preloaded closed by spring means, and is operated by the hydraulic presence of the liquid flowing through the passageway.

3,782,242
WEAPON HAVING PARTIBLE FIRING CHAMBER

Robert H. Angell, 514 E. 88th St., New York City, N.Y.; Robert S. Frielich, 396 Broome St., New York City, N.Y., and James P. Angell, 1119 N. Jackson, River Forest, Ill.

Filed Feb. 9, 1972, Ser. No. 224,661
Int. Cl. F41d *7/02*
U.S. Cl. 89—11 **5 Claims**



A semi-automatic or automatic weapon provided with a split or partible firing chamber, adapted to be fed laterally with cartridges and operating in conjunction with a reciprocating bolt mechanism having an exceptionally short stroke, whereby the weapon may be fired at a high rate. The chamber is composed of a pair of complementary sections

which in the course of each cycle of rotation or reciprocation, depending upon the nature of the weapon, are caused by associated cams to first separate to receive a laterally-fed incoming round, and thereafter to draw together to define a cavity enclosing the round, at which point the bolt mechanism acts to engage and fire the round in the chamber, the case then being extracted and ejected.

3,782,243

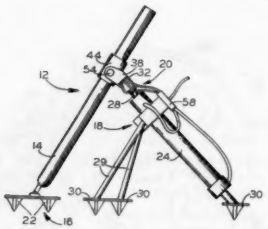
AUTOMATIC AZIMUTH RECOVERY SYSTEM FOR CANNONS

William H. Ziegler, Waterford, N.Y., assignor to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed June 27, 1972, Ser. No. 266,802

Int. Cl. F41f *21/08*

U.S. Cl. 89—37 C **9 Claims**



The rear end of a mortar tube is supported by a base plate with the front end supported in an elevated position by a tripod. The tripod comprises a cylinder with a cooperating fluid actuated piston rod which carries a yoke that is pivotally connected to a sleeve slidingly disposed on the tube to vary the elevation angle thereof responsive to axial movement of the piston rod. The yoke is slidingly mounted to the piston rod for lateral displacement responsive to fluid pressure applied thereto. Rearward recoil displacement of the base plate relative to the tripod rotates the trunnions that pivotally mount the sleeve to the yoke. This angular movement of the trunnions is sensed by a fluidic system whereby the piston rod is actuated linearly to move the sleeve along the tube until the pre-adjusted elevation angle thereof is recovered. Any lateral movement of the base during the rearward recoil displacement rotates the piston rod about its central axis. A fluidic sensor on the cylinder senses the angular movement of the piston rod and through a fluidic system actuates the yoke laterally to where the pre-determined azimuth adjustment is quickly recovered simultaneously with the recovery of the pre-selected elevation angle.

3,782,244

MACHINE FOR CUTTING STRAIGHT-TOOTH BEVEL GEARS

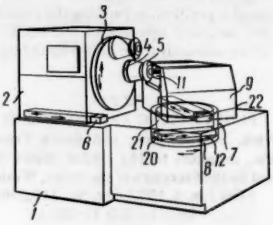
Gennady Vasilievich Levashov, N-Astrakhanskoe shosse, 37, kv. 76, Saratov; Sergei Nikiforovich Kalashnikov, I Kozhukhovsky proezd, 11 korpus "m" kv. 47; Ivan Ivanovich Glukhov, Rogozhinsky val, 13 korpus 8 kv. 40, both of Moscow, and Mikhail Pavlovich Shemyrev, Ilinsky proezd, 11, kv. 1, Saratov, all of U.S.S.R.

Filed Mar. 22, 1972, Ser. No. 237,080

Int. Cl. B23f *1/08*

U.S. Cl. 90—9 **6 Claims**

The machine is equally applicable both for rough and finish machining of the tooth space of a bevel gear being cut; it possesses an increased rigidity attainable due to the provision of a device for orienting the tool carriage with respect to the work



spindle, defined as straight slideways and another straight slideways square with the former one, to provide setup motions of the tool carriage.

3,782,245

PRESSURE BALANCED RADIAL PISTON MACHINE

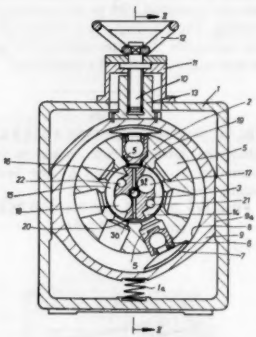
Ulrich Aldinger, Stuttgart, Germany, assignor to Robert Bosch GmbH, Stuttgart, Germany

Filed Aug. 18, 1971, Ser. No. 172,706

Claims priority, application Germany, Aug. 20, 1970, P 20 41 328.9

Int. Cl. F01b *13/06*

U.S. Cl. 91—6.5 **4 Claims**



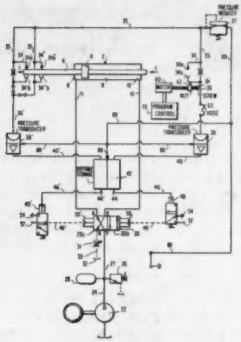
The inward pressure exerted by the cylinder rotor of a hydraulic radial piston machine on the stationary control member on which the rotor rotates, is compensated by balancing chambers on control portions between the high and low pressure ports of the control member. Fluid under high pressure is supplied from the high pressure port to the respective control portion on which the inward pressure of the cylinder of the piston in the inner radial dead center position acts. The conduit system of the control member includes check valves preventing communication between the high pressure port and the low pressure port.

3,782,246

HYDRAULICALLY OPERATED VIBRATION DRIVES

Jan Willem Hilbrands, Hattingen/Ruhr, Germany, assignor to Maschinenfabrik Koppern & Co. KG, Hattingen Ruhr, Germany

Continuation-in-part of Ser. No. 53,482, July 9, 1970, abandoned. This application July 6, 1972, Ser. No. 269,431
Claims priority, application Germany, July 11, 1969, P 19 35 253.5
Int. Cl. F011 *31/00, 25/02*
U.S. Cl. 91—277 22 Claims



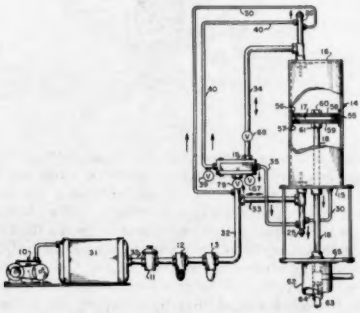
A vibratory drive comprises a double acting power piston arranged to be reversed by position detecting jet sensing means. The latter are connected with a reversing valve via bistable fluidics storage means.

3,782,247

PNEUMATIC COUNTER BALANCED OIL WELL PUMP ACTUATOR UTILIZING AN IMPROVED SNIFTER VALVE

Joseph H. Klaeger, 147 Stardream Dr., San Antonio, Tex.

Continuation-in-part of Ser. No. 125,560, March 18, 1971, abandoned. This application Dec. 20, 1971, Ser. No. 209,788
Int. Cl. F011 *25/06*; F01b *7/18*
U.S. Cl. 91—306 9 Claims



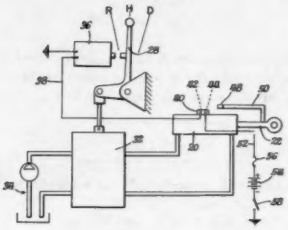
An oil well pump actuator utilizing a counter balance over pressure for lifting the sucker rods and fluid load. Reciprocation is accomplished by applying air or gas pressure to the top of the pumping cylinder overriding the counter balance pressure. The controls comprise a floating piston bleeder valve in conjunction with an improved snifter valve to replace a conventional button bleeder valve, the device also comprises a braking means in conjunction with the snifter valve constructed to arrest and cushion the pumping piston at each end of a cyclic stroke.

3,782,248

ELECTRONIC COMPONENT POSITIONER FOR LOADER VEHICLES AND THE LIKE

Joe E. Fuzzell, Peoria, Ill., assignor to Caterpillar Tractor Co., Peoria, Ill.

Filed Sept. 11, 1972, Ser. No. 287,604
Int. Cl. F15b *13/16*
U.S. Cl. 91—358 A 9 Claims



A conventional hydraulic fluid pump is hydraulically coupled via a self-centering control valve means to a hydraulic cylinder having a reciprocatable cylinder rod coupled to a vehicle component. An electromagnet is disposed to latch the control valve means in a selected position when energized. Switch means is secured to the hydraulic cylinder, and means for actuating the switch means is secured to the cylinder rod for translation therewith. A logic circuit is connected to the switch means and to the electromagnet, whereby the electromagnet is energized in response to the degree of movement, and a first direction of movement, of the cylinder rod to latch the control valve means. The electromagnet is deenergized via the switch means and the means for actuating, when the cylinder rod reaches a preselected position proceeding from the opposite direction. This unlatches the control valve means which allows it to seek its self-centered position. Thus, fluid flow to the hydraulic cylinder ceases when the vehicle component reaches a preselected position.

3,782,249

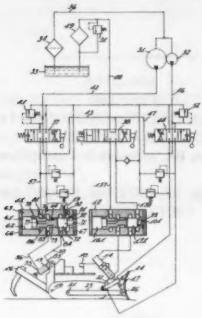
HYDRAULIC CONTROL SYSTEM WITH LOCKING VALVE TO PREVENT ACCIDENTAL OR UNAUTHORIZED LOWERING OF A TRACTOR IMPLEMENT

Gary A. Drone, Springfield, Ill., assignor to Allis-Chalmers Corporation, Milwaukee, Wis.

Filed Nov. 16, 1972, Ser. No. 307,055
Int. Cl. F15b *13/01*
U.S. Cl. 91—411 R 15 Claims

A hydraulic control system for a tractor implement includes a locking valve which is interposed between the control valve and the lift motor. The locking valve prevents accidental or unauthorized lowering of the implement when the tractor en-

gine is not running. The control valve for the system may include a float position in which event the locking valve will include a spring for biasing it toward its open position so as to insure fluid communication between opposite sides of the hydraulic motor when the tractor is being operated with the implement control system in a float condition.



3,782,250

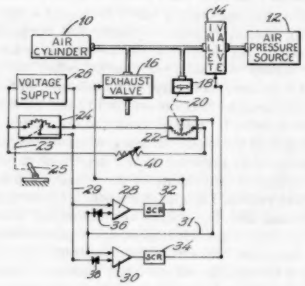
CONTROL SYSTEM

Robert F. Kiszewski, Superior, Wis., assignor to Microdot, Inc., Greenwich, Conn.

Filed Nov. 3, 1971, Ser. No. 195,113

Int. Cl. F15b *11/10, 13/04, 13/044*

U.S. Cl. 91—433 **2 Claims**



A control system for an air cylinder in which electronic links are used to control a cylinder from a remote location without the delay normally encountered with air transmission lines. Inlet and exhaust valves are electronically activated in response to a pressure measuring device on the air cylinder which produces a voltage signal which signal is compared to a voltage signal generated at the control location.

3,782,251

SPRING BRAKE WITH MANUAL RELEASE MECHANISM

Claude Le Marchand, Villiers-Le-Bel, France, assignor to Societe Anonyme D.B.A.

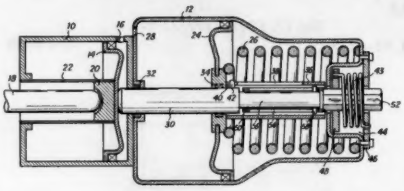
Filed Feb. 14, 1972, Ser. No. 226,134

Claims priority, application France, Mar. 2, 1971, 7107092

Int. Cl. F01b *7/00*

U.S. Cl. 92—63 **6 Claims**

Spring brake actuator having a manual release mechanism. In this actuator, the push-rod is slidably received through an opening in the piston, the piston being connected to the push-rod by a bayonet type locking means in which members can be engaged with one another by rotating the push-rod in one direction. A telescopic connection arranged rearwardly of the piston includes a control member manually operable from the exterior of the actuator housing for rotating the push-rod in the other direction to thereby dissociate the push-rod from the piston and cancel the braking action of the actuator. The push-rod is rotationally urged in the locking direction by a spring for allowing the actuator to be automatically reset when its supply in fluid pressure is restored.



3,782,252

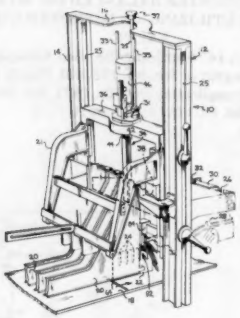
NOTCH SENSING CONTROL SYSTEM FOR A PARTITION ASSEMBLY MACHINE

Tadeusz Kozlowski, Toledo, Ohio, and Ernest H. Pemberton, Hoffman Estates, Ill., assignors to Owens-Illinois, Inc., Toledo, Ohio

Division of Ser. No. 153,955, June 17, 1971, Pat. No. 3,712,183. This application Sept. 26, 1972, Ser. No. 292,276

Int. Cl. B31d *3/04*; **B31b** *11/02*

U.S. Cl. 93—37 R **4 Claims**



A fluid flow sensing control system to sense the presence of notches in a series of longitudinal partition strips and initiate the insertion of a cross strip into the notches in a continuous process to produce a cell-type filler for a carton. A stream of fluid under pressure is directed across a gap in a fluid flow interruption sensing head from a series of emitting orifices to a corresponding series of collecting orifices. One of a plurality of longitudinal partition strips is directed to pass through the gap in the sensing head, thereby disrupting the normal flow from the emitting to the collecting orifices. The passage of a notch in the longitudinal partition is sensed and the signal is processed by a fluid logic system, which in turn causes a transverse partition strip to be inserted by a feeding mechanism into the aligned notches in the longitudinal strips. It should be understood that longitudinal strips are in parallel with the

sensed strip so that the transverse strip is inserted in all longitudinal strips at the same time. Also these sets of plural longitudinal strips are introduced in series into the insertion area. Provision is also made to automatically clear the collecting orifices of any buildup of corrugated material debris blown off of the longitudinal strips.

3,782,253

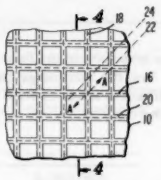
COLOR TELEVISION PICTURE TUBE SCREENING METHOD

Frans Van Hekken, Lancaster, Pa., assignor to RCA Corporation, New York, N.Y.

Filed May 2, 1973, Ser. No. 356,455

Int. Cl. G03b *27/00*

U.S. Cl. 95—1 R **14 Claims**



The discontinuities on a correction lens having an effective surface made up of a plurality of elements are masked. The masked lens is displaced in a linear direction diagonal to the directions of the discontinuities during exposure of a picture tube screen. The diagonal corners of the mask pattern can be filled in to provide uniform exposure over the screen.

3,782,254

APPARATUS FOR INDICATING EXPOSURE CONDITIONS OF CAMERAS EQUIPPED WITH ELECTRIC SHUTTER MECHANISMS

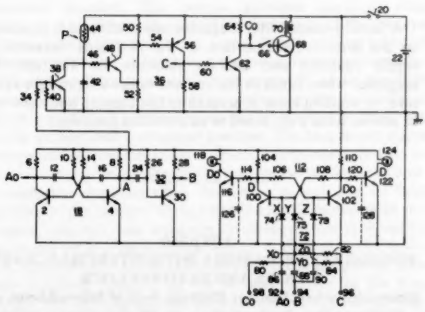
Soichiro Matsuzaki, and Isao Kondo, both of Tokyo, Japan, assignors to Olympus Optical Co., Ltd., Tokyo, Japan

Filed Aug. 29, 1972, Ser. No. 284,464

Claims priority, application Japan, Sept. 3, 1971, 46/68165; Sept. 3, 1971, 46/68166; Nov. 17, 1971, 46/92062; Apr. 4, 1972, 47/33744

Int. Cl. G03b *17/18, 9/62*

U.S. Cl. 95—10 CE **7 Claims**



In apparatus for indicating exposure conditions of a photographic camera equipped with an automatic exposure control device for opening the shutter at a shutter speed corresponding to the quantity of light received from an object, there are provided first and second electric pulse generating circuits for producing first and second reference time pulses having pulse widths corresponding to the maximum and minimum shutter speeds respectively, comparator means to compare the pulse widths with the width of the output pulse from the automatic exposure control device, and indicating means responsive to the output from the comparator means to indicate adequate and inadequate exposure conditions.

3,782,255

PHOTOGRAPHIC APPARATUS WITH AUTOMATIC DIAPHRAGM ADJUSTING MEANS

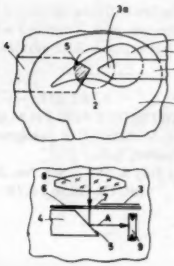
Gerhard Boerner, Musberg, Germany, assignor to Robert Bosch Photokino GmbH, Stuttgart, Germany

Filed Oct. 5, 1972, Ser. No. 295,365

Claims priority, application Germany, Oct. 8, 1971, P 21 50 185.9

Int. Cl. G01j *1/04, 1/16;* **G03b** *9/02*

U.S. Cl. 95—10 C **32 Claims**



The diaphragm of a camera is adjustable by a light meter which is in circuit with a photoelectric transducer receiving scene light from a stationary vane of the diaphragm. The diaphragm has a movable vane which is located in front of the stationary vane. The stationary vane has a surface which reflects some light from the incoming beam of scene light, and the reflected light impinges upon the transducer which can be mounted on a support for the stationary and/or movable vane or is attached directly to the stationary vane. The area of the light reflecting surface or the reflectivity of such surface varies with changes in the aperture size so that the ratio of the amount of scene light which is reflected against the transducer to the amount of scene light which passes through the aperture is constant for all positions of the movable vane. The same result can be obtained if the stationary vane embodies a filter or an auxiliary diaphragm whose light transmissivity or shape varies with changes in the aperture size to insure that the ratio of the amount of light reaching the transducer to the amount of light which passes through the aperture remains constant for all positions of the movable vane.

3,782,256

PUSH BUTTON CONNECTOR CONNECTING CABLE WITH INTEGRAL PUSH BUTTON SWITCH

Peter T. Quinn, Littleton, Colo., assignor to Honeywell Inc., Minneapolis, Minn.

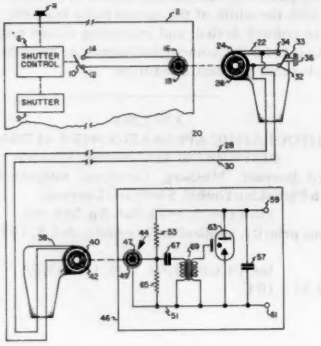
Filed Nov. 20, 1972, Ser. No. 308,154

Int. Cl. G03b *9/70, 15/05*

U.S. Cl. 95—11.5 R **6 Claims**

A photographic camera is connected to a remotely located electronic flash unit by a connecting device which includes first and second end connector assemblies. A selectively operable switch forms a part of at least one of the end connector assemblies thereby allowing the testing of the remotely

located flash unit from the camera location without actuating the shutter of the camera. One embodiment of an end connector assembly includes a diode in series with the selectively operable switch for use with a camera which includes a light sensing circuit of a computer-flash system.



3,782,257

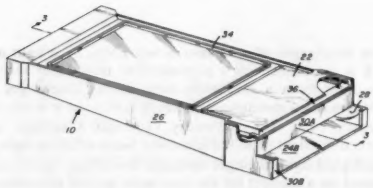
CARTRIDGE FOR FILM UNITS

Donald M. Harvey, Webster, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

Filed July 5, 1972, Ser. No. 268,933

Int. Cl. G03b *19/10*

U.S. Cl. 95—19 **10 Claims**



A cartridge for a plurality of photographic film units of the self-processing type wherein the film units each include an image-recording unit releasably coupled at the leading end to a leading member which comprises elements that can be separated from the finished photographic print and constitute waste that must be disposed of. The cartridge comprises a substantially rectangular container having an exposure aperture in one surface. The cartridge is provided with a trailing and a leading end, the leading end being provided with a film unit dispensing slot for the removal of an exposed image-recording unit from the cartridge. The lower portion of the leading end of the cartridge extends beyond the portion containing the dispensing slot and is arranged to accept and retain the leading member as it is separated from the image-recording unit.

3,782,258

IGNITION ARRANGEMENT FOR A DISCHARGE TUBE

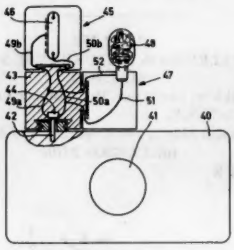
Anton Boekkooi; Meerten Luursema, and Taeke Tol, all of Emmasingel, Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

Filed Dec. 3, 1971, Ser. No. 204,461

Int. Cl. G03b *15/03*

U.S. Cl. 95—11.5 R **4 Claims**

The invention relates to an arrangement for igniting a discharge tube provided with an external ignition electrode. According to the invention this discharge tube is ignited with the aid of a mechanically operable piezo-electric element. The invention leads to a simple ignition circuit. In addition, the use of the invention in the field of flashing equipment in photocameras has the advantage that exchangeability is possible so that different kinds of flash lamps can be flashed on one and the same camera.



3,782,259

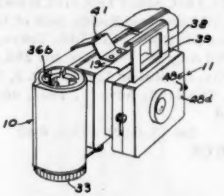
CAMERA

Samuel Noble, 2608 Watonga, Union Lake, Mich.

Continuation-in-part of Ser. No. 801,513, Feb. 24, 1969, abandoned. This application Dec. 10, 1971, Ser. No. 206,032

Int. Cl. G03b *17/04*, *19/04*

U.S. Cl. 95—31 R **44 Claims**



A factory-loaded film magazine and a camera is supported on the intermediate portion of the magazine between the supply chamber and take-up chamber for the film. The magazine when fitted to the camera forms a light tight enclosure. A winding knob is pivoted to the camera body and may be moved from a retracted to an extended position.

3,782,260

PHOTOGRAPHIC CAMERA WITH INTERCHANGEABLE LENSES AND BAYONET LOCK

Helmut Ettischer; Dietmar Blattner, both of Schwaikheim, and Wolfgang Ort, Stuttgart-Wangen, all of Germany, assignors to Eastman Kodak Company, Rochester, N.Y.

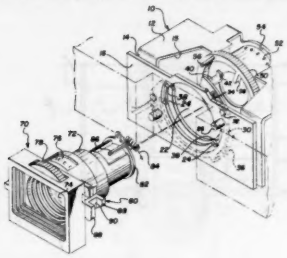
Filed July 14, 1972, Ser. No. 271,846

Int. Cl. G03b *7/14*

U.S. Cl. 95—45 **13 Claims**

A mechanism for mounting interchangeable lens units on photographic apparatus includes a coupling member movable

under urging of an adjusting ring to unlock a spring loaded bayonet lock and thereby permit insertion of a lens unit.



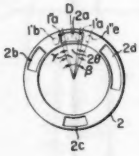
Means may also be provided for transmitting movement of the adjusting ring to an adjustable diaphragm associated with the lens unit.

3,782,261

DATA TRANSMISSION DEVICE FOR USE WITH INTERCHANGEABLE-LENS-CAMERAS

Kunihiko Araki, Yokohama, Japan, assignor to Ricoh Co. Ltd., Tokyo, Japan

Filed Apr. 11, 1972, Ser. No. 243,033
Claims priority, application Japan, Apr. 16, 1971, 46-23873
Int. Cl. G03b *3/00*
U.S. Cl. 95—45 **7 Claims**



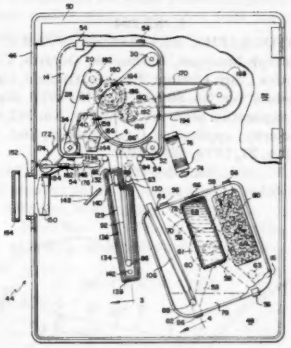
A device for exchanging information, such as exposure data, between a camera body and an interchangeable lens mounted thereon. The device provides accurate data exchange even when the machining tolerances of the camera mount and the lens mount are eased. The device includes an annular surface on the camera mount which has a uniform circular array of data transmission elements. Each of the data transmission elements is biased towards a projected position in which it sticks out of the camera mount annular surface, but can be pushed into a retracted position. The lens mount has a corresponding annular surface which is provided with one or more arcuate grooves adapted to receive loosely selected data transmission elements when the lens is mounted in its final position on the camera. Thus, when the lens is mounted on the camera, selected data transmission elements are received in the groove or grooves and thus remain in their projected position, while other data transmission elements are pushed into their retracted position by the annular surface of the lens mount. The data transmitted between the camera and the lens is determined by the particular combination of retracted and projected data elements when a lens is mounted on the camera. Because of the digital nature of the data exchange, the machining tolerances of the camera mount and the lens mount may be eased, since each of the circumferential edges of the grooves in the lens can be anywhere between particular data transmission elements when the lens is in its final position on the camera, so long as it does not overlap the outline of an element which must remain in its projected position. With eased machining tolerances, the cost of producing cameras with interchangeable lenses can be reduced substantially without sacrificing quality.

3,782,262

MOTION PICTURE PROCESSING AND PROJECTION SYSTEM EMPLOYING MULTI-PURPOSE CASSETTE

Roger B. Downey, Lexington, Mass., assignor to Polaroid Corporation, Cambridge, Mass.

Division of Ser. No. 761,771, Sept. 23, 1968, Pat. No. 3,597,062. This application Oct. 23, 1970, Ser. No. 83,593
Int. Cl. G03d *3/08*
U.S. Cl. 95—89 R **3 Claims**



A motion picture system utilizing a cassette having two releasably connected sections. In one section respective ends of a strip of film are permanently attached to reels for reversible transport across a film gate, while the other section contains development fluid. Initially, when the two sections are connected together, the cassette is adapted to be positioned in a camera for exposure purposes. Subsequently, the two sections are separated and mounted independently in a unique projector in which the film is sequentially and simultaneously developed, by passing a loop thereof drawn from the film gate of the first section through the developing fluid contained in the second section, dried and projected through an appropriate optical system. Specially devised features are employed in the projector to release the development fluid from a sealed container into a reservoir section of the developing section of the cassette, to draw the loop of film from the film gate of the first section and insert the loop into the reservoir of development fluid, to dry the developed film and to subsequently retain the development fluid in a safe manner.

3,782,263

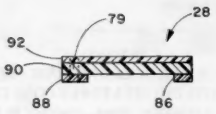
PHOTOGRAPHIC SYSTEM EMPLOYING FILM MARGIN RAILS

Edwin H. Land, Cambridge, and Lucretia Weed, Boston, both of Mass., assignors to Polaroid Corporation, Cambridge, Mass.

Filed Jan. 3, 1972, Ser. No. 214,918
Int. Cl. G03d *3/00*
U.S. Cl. 95—89 R **24 Claims**

Photographic system having a processor adapted to apply a thin layer of processing fluid on an exposed strip of motion picture film as it is progressively drawn thereacross and a spool member for convolutely storing the film strip substan-

tially immediately following application of the fluid thereon, employs protuberances located along both lateral margins of the film strip for spacing adjoining turns of the latter when it is convolutely stored on the spool member so as to prevent



disturbance of the not yet fully dried fluid layer. Additionally, the protuberance of either or both margins may be a continuous elongated rail configured for magnetically recording sound information. Preferably, the margin rail would include a thin surface coating for the latter purpose.

3,782,264

PHOTOGRAPHIC DEVELOPER APPARATUS

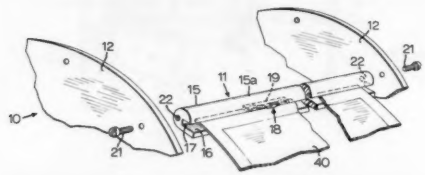
Raymond Joseph Masygan, Burlington, Ontario, Canada, assignor to Alex Clark Limited, Toronto, Ontario, Canada

Continuation of Ser. No. 80,836, Oct. 15, 1970, abandoned. This application Sept. 25, 1972, Ser. No. 292,094

Claims priority, application Great Britain, Oct. 22, 1969, 51809/69; Jan. 27, 1970, 4008/70

Int. Cl. G03d *3/08*

U.S. Cl. 95—93 **6 Claims**



A method and apparatus for processing photographic sheet material, in which the edge of the sheet is attached to a rod having an aerofoil cross-section. Upon passing the rod through processing liquid the liquid flows over the leading edge of the rod and produces turbulence on the face of the sheet which is lying in the plane of the aerofoil. In a reel comprising spaced rods the sheets may overlap and the turbulence will keep them separated. Sheet film may be attached at opposed edges to such rods placed back-to-back. Inner and outer concentric reels may be used, and such reels may carry roll film. A trough for use with developer reels has a longitudinal slot for rapid drainage. In another embodiment a closed tank having an air inlet and a longitudinal air outlet slot controls ambient conditions. In a further embodiment a pair of slotted end discs carry photographic sheet material without supporting rods.

3,782,265

ASSEMBLY FOR SEPARATING A DUST-FREE PART FROM A SPACE, AND METHOD FOR DISINFECTING THE SAME

Jacob Pielkenrood; Piet Van Galen, both of Krommenie, and Johannes G. Th. Van Nes, Heerhugowaard, all of Netherlands, assignors to Pielkenrood-Vinitex B.V., Assendelft, Netherlands

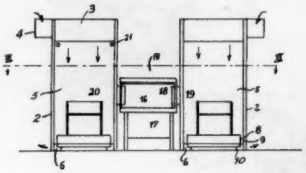
Filed May 5, 1971, Ser. No. 140,549

Claims priority, application Netherlands, May 6, 1970, 7006660

Int. Cl. F24f *13/00*

U.S. Cl. 98—33 **7 Claims**

An assembly of tent-like units for isolating patients, each unit comprising four columns supporting an air supply chamber and pliable side walls, the air supply chamber being designed for producing a uniform downward air flow in the unit in question for keeping out dust at the lower side of the pliable side walls. Such units may be coupled with one another at corresponding side walls or with auxiliary devices for transferring objects to and from such units. The inner space of such an assembly may be disinfected unit by unit by closing the connection between the unit to be disinfected and an adjacent unit so that a patient should not be removed from the assembly during disinfection.



3,782,266

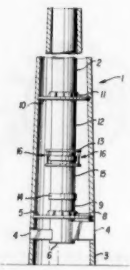
APPARATUS FOR PROVIDING EXPANSIBLE CHIMNEYS

Randolph W. Snook, Yorktown Heights, N.Y., assignor to Pullman, Incorporated, Chicago, Ill.

Filed Apr. 7, 1972, Ser. No. 241,952

Int. Cl. E04h *12/28*

U.S. Cl. 98—58 **12 Claims**



A lined chimney having upper and lower support means for the liner, and at least two expansion joints separated by toggle sections between the upper and lower liner supports, at least one expansion joint having plural expansible or compressible hangers on the exterior thereof, and a method for providing the same.

3,782,267

APPARATUS FOR PRESSURE COOKING FOOD

George A. Moore, 843 N. Dellrose, Wichita, Kans.

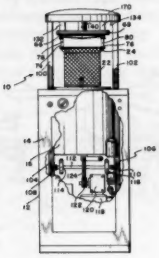
Division of Ser. No. 608,168, Jan. 9, 1967. This application Feb. 2, 1971, Ser. No. 111,936

Int. Cl. A47j *37/12*

U.S. Cl. 99—410 **22 Claims**

Deep-fat pressure cooker apparatus including a power driven cover that coacts with the cooking vessel in the manner of a piston and a cylinder to enable both the closure of the ves-

sel and also the compression of the contents of the vessel to pressurize the latter. The apparatus also includes a food basket that is releasably coupled to depend from the cover,



and which basket, if previously positioned in the vessel, is automatically coupled to the cover on the subsequent lowering of the latter.

3,782,268

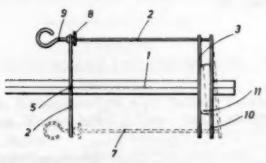
ROTARY ROASTING DEVICE

Jorge Roca Navarro, Lauria St. 123, Barcelona, Spain

Filed Sept. 25, 1972, Ser. No. 291,557

Int. Cl. A47j *37/04*

U.S. Cl. 99—421 P **2 Claims**



An improved rotary roasting device for mounting at least one spit, comprising a square section axle, and three substantially parallel plates mounted on said axle, two at one extremity and the third at the other, the first plate being held elastically in parallel against the second plate, the second plate having orifices for receiving the extremity of the spit, and the third plate having square windows with slots opening to the periphery of the plate, and the spit having a handle portion at one end and a triangular enlargement with a backing stop adjacent the handle portion, the triangular enlargement being positionable in said square window.

3,782,269

OMELET PREPARING MACHINE AND PROCESS

S. Duane Latham; Robert D. Seeley, both of Crestwood; Henry F. Reitz, and Ronald F. Reitz, both of St. Louis, all of Mo., assignors to Anheuser-Busch, Incorporated, St. Louis, Mo.

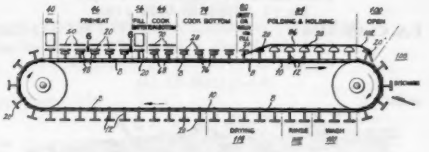
Division of Ser. No. 79,922, Oct. 12, 1970. This application Sept. 8, 1972, Ser. No. 287,524

Int. Cl. A47j *37/10, 37/18;* A23p *1/00*

U.S. Cl. 99—427 **16 Claims**

The invention comprises a machine and process for producing a folded egg omelet using an egg batter mixture. The mixture is deposited into a preheated omelet cooking pan which has hinged sides which are folded upwardly together after partial cooking of the omelet.

The omelet batter is deposited into the preheated foldable pan and is heated from the top and from the bottom. After direct heating is terminated, flavoring ingredients or inclu-



sions are deposited onto the partially cooked omelet and CO_2 and steam are allowed to escape before the pan is closed. The omelet while folded continues to cook from the residual heat in the omelet cooking pan.

3,782,270

APPARATUS FOR MAKING FOOD UNITS

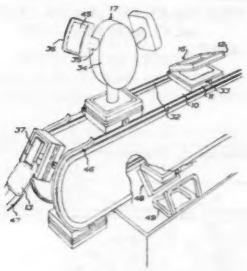
Soren Elof Mauritz Sollerud, Norrkoping, Sweden, assignor to Maskin AB Solco, Norrkoping, Sweden

Filed Nov. 1, 1971, Ser. No. 194,470

Claims priority, application Sweden, Nov. 2, 1970, 14744/70

Int. Cl. A21c *15/02*

U.S. Cl. 99—450.4 **7 Claims**



Food units consisting of two slices of bread and a filling interleaved with them are prepared by slicing fresh bread and conveying the slices to means in which the desired filling is placed on one slice, whereupon another slice is placed on top of the filling on the first slice. The conveying means includes successive pairs of frames each accomodating one slice of bread, and one frame in each pair of frames is approximately horizontally oriented while the other frame is pivotally connected to the first frame and adapted to be raised ahead of the filling means to permit the filling to be spread over the horizontal slice, leaving adjacent the edges thereof a zone free of filling, whereafter the frames are swung together and pressure is exerted against the marginal zones of the slices to bond them together with the aid of their starch content.

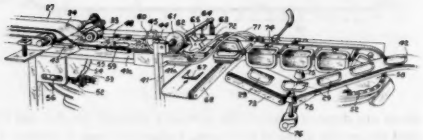
The food units are made ready for consumption by being heated for a short time in a conventional toaster.

3,782,271

AUTOMATIC PIE APPARATUS

Hubert E. Tobey, Milltown; John W. Hood, East Brunswick, and Dee L. Irvin, Moonachie, all of N.J., assignors to International Telephone and Telegraph Corporation, Nutley, N.J.

Filed Apr. 27, 1972, Ser. No. 248,319
Int. Cl. A21c *9/06, 9/08, 11/00*
U.S. Cl. 99—450.6 **11 Claims**



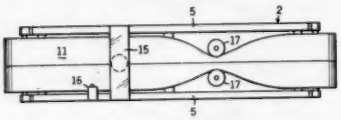
An automatic pie forming apparatus for individual fruit pies which are produced in a continuous in-line system. The apparatus includes an arrangement for providing a continuous strip of dough to a number of individual pie molds moving in a continuous loop. The strip of dough is fed into the molds to be filled, formed, trimmed, and a pie is dispensed automatically and positioned to be delivered to the cooking facility. The apparatus automatically provides the forming, trimming, and dispensing of the individual filled pies.

3,782,272

FOOD HANDLING EQUIPMENT AND METHOD OF USE

Ernest A. Cooper, Poway, Calif., assignor to Toolmakers, Inc., San Diego, Calif.

Filed May 19, 1971, Ser. No. 144,742
Int. Cl. A21c *9/06, 11/00*
U.S. Cl. 99—450.7 **2 Claims**



The method and apparatus for continuously and automatically metering or dispensing a material to be utilized in the preparation of a food product is disclosed. More particularly this relates to a method and apparatus for automatically handling food products which may be effectively utilized in automatically producing a taco food product. The method consists of conveying tortillas past a metering position wherein a predetermined quantity of meat material is deposited on the tortilla, and thereafter the tortilla is conveyed between a pair of opposed rollers for folding and enclosing the tortilla about the meat filler to form the taco food product.

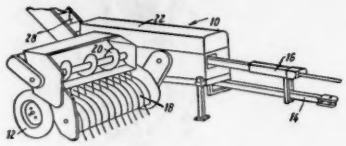
The apparatus which may be utilized for effecting the metering or dispensing of materials in this manner consists of a valve member having a metering chamber therein, the valve member being movable between a supply position and a discharge position. The movement of the valve and the discharge of the material from the metering chamber is effected in response to an applied force or a signal indicating the presence of a receiving member beneath the metering valve.

3,782,273

APPARATUS FOR COMPACTING FODDER OR THE LIKE

Gerhard Romer, Nillbergstr. 13, Einod, Germany

Division of Ser. No. 769,143, Oct. 21, 1968, Pat. No. 3,673,951. This application Sept. 3, 1971, Ser. No. 177,572
Int. Cl. B30b *11/00*
U.S. Cl. 100—50 **57 Claims**



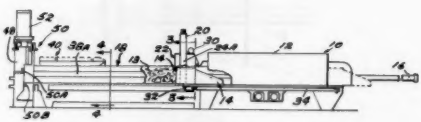
Fodder is converted into shape-retaining blocks or cakes by an apparatus which collects fodder off the ground and subjects it to a preliminary compacting action, thereupon to a twisting action which results in the formation of ropes of convoluted material, and to final compacting action resulting in conversion of ropes into blocks or cakes of firmly compacted material. The twisting and final compacting actions can be carried out sequentially or simultaneously.

3,782,274

APPARATUS FOR CONTINUOUSLY PRODUCING BLOCKS FROM SCRAP METAL

Wallace M. Thompson, R.F.D. No. 3, Cordele, Ga.

Filed Mar. 17, 1972, Ser. No. 235,719
Int. Cl. B30b *15/08*
U.S. Cl. 100—95 **12 Claims**



An apparatus for continuously producing blocks from scrap metal including a compression box which squeezes scrap metal loaded therein into an elongated charge and which includes a ram means for pushing this charge into an axially aligned feeding section. In the feeding section, a plate slidably mounted upon a carriage is vertically lowered behind the rear end of the charge and the charge is driven out the discharge end of the feeding section into the path of a reciprocating shearing blade by a second ram which engages the carriage. The compression box may be reloaded while the feeding and shearing operations take place whereby a continuous process is possible.

3,782,275

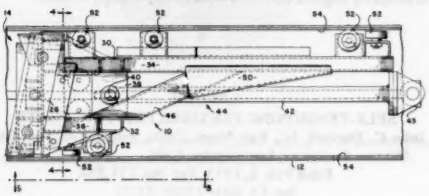
LIGHT WEIGHT PLUNGER FOR A HAY BALER

Neil W. Webster, Pottstown, and Donald L. Sheesley, New Holland, both of Pa., assignors to Sperry Rand Corporation, New Holland, Pa.

Filed May 15, 1972, Ser. No. 253,403
Int. Cl. B30b *9/00*
U.S. Cl. 100—98 R **9 Claims**

The present invention relates to a light weight plunger of the type reciprocably mounted in a bale case of a hay baler and driven fore-and-aft therein to compact crop material being

received within said bale case into rectangular bales. In particularly, the present plunger construction comprises a tubular subframe assembly mounted behind a head construction, the tubular subframe assembly being particularly adapted to receive one end of a connecting rod that is driven fore-and-aft within the bale case by a crank type drive provided with the baler. The tubular subframe structure comprises a pair of vertically spaced transversely extending tubular members secured to the backside of said head construction and joined at one end with a pair of vertically spaced fore-and-aft extending tubular members, the fore-and-aft tubular members being disposed on the same side of the plunger as a knife structure that acts to cut crop material being fed into the bale case as the plunger moves by the crop inlet area on the compression stroke. Also, the pair of fore-and-aft extending tubular members form an integral part of a single guide rail assembly that projects rearwardly from the plunger head construction and particularly includes roller means confined within a track structure such that during the reciprocable movement of the plunger with the bale case, the guide rail assembly provides a stabilizing influence on the entire plunger construction.



3,782,276

CARRIAGE LOCKING ARRANGEMENT FOR A MANUAL PRINTER

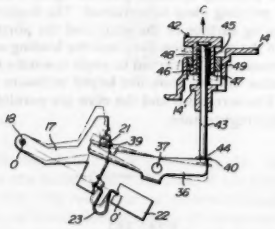
Tetsuo Nakada, Kanagawa-ken, and Noboru Oyama, Tokyo, both of Japan, assignors to Janome Sewing Machine Co., Ltd., Tokyo, Japan

Filed May 26, 1972, Ser. No. 257,329

Claims priority, application Japan, May 28, 1971, 46/43310; June 2, 1971, 46/45281

Int. Cl. B41l *47/56*

U.S. Cl. 101—56 **9 Claims**



An arrangement for locking the carriage of a manual printer in an initial position after a printing stroke and a return stroke so that the operator cannot repeat the printing stroke without first releasing the carriage by operation of a release button. In this manner, the operator is reminded to reset a series of type wheels over which the platten roller of the released carriage passes during the following printing stroke. If repeated printing in unchanged position of the type wheels is desired, the release button is turned and mechanically held in a position in which the carriage is not locked in the initial position so that printing strokes can be repeated until the release button is returned to its normal position.

3,782,277

OFFSET PRESS NUMBERING ASSEMBLY

Maurice M. Neal, 1922 22nd St., Des Moines, Iowa

Filed June 21, 1972, Ser. No. 264,917

Int. Cl. B41l *45/00*

U.S. Cl. 101—76 **7 Claims**

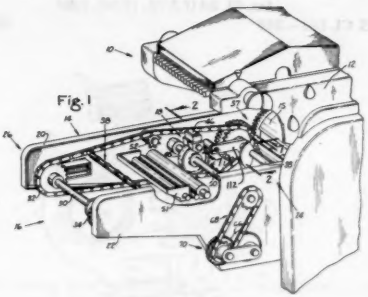


Fig. 1

A serial numbering machine assembly is incorporated with a conventional offset printing press for the printing of numbers on checks, invoices, statements and similar forms where numbering is desired. Adjustments are provided to print at different selected places on the form, to render the number machine inoperative if desired, and, when the offset press is in operation, to render the number machine inoperative if no printed material is released from the press.

3,782,278

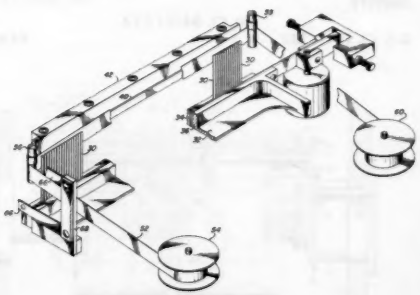
IMPACT LINE PRINTER

David L. Barnett; Stanley E. Rose, and Robert S. Zurcher, all of Phoenix, Ariz., assignors to Tally Corporation, Kent, Wash.

Filed Dec. 11, 1970, Ser. No. 97,166

Int. Cl. B41j *5/08*

U.S. Cl. 101—93 C **11 Claims**



A plurality of hammers are aligned laterally across a flexible sheet and are mounted on a support that is horizontally stepped a discrete number of step positions. A plurality of electromagnets, each associated with a single hammer, are mounted in a fixed position and are energized to cause the hammer to impact the flexible sheet. As the hammers are

stepped back and forth, and as selected electromagnets are energized, the paper is stepped or advanced to result in a character being impact-printed on the sheet. Each character comprises a plurality of dots or marks arranged in a matrix.

3,782,279

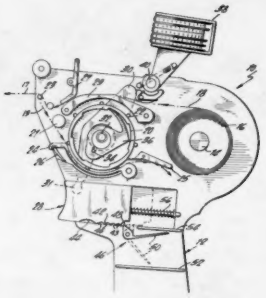
POSITIVE REGISTRATION LABELING GUN

Victor B. Carboni, Jr., San Mateo, and Paul Harrison, Santa Barbara, both of Calif., assignors to Consolidated Foods Corporation, Chicago, Ill.

Continuation of Ser. No. 246,894, April 24, 1972, abandoned. This application Feb. 14, 1973, Ser. No. 332,351

Int. Cl. B41f *3/18, 19/00, 1/08*

U.S. Cl. 101—288 **10 Claims**



A labeling device of the type having a housing, tape, and a stamp to imprint the tape. Means for unidirectionally advancing the tape are provided as well as means for activating the advancing means. The activating means prevents the advancing means from being reactivated until the advancing means has been advanced a selected distance.

3,782,280

SENSING MECHANISM FOR IMPRESSION CYLINDERS

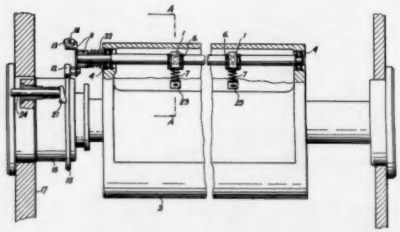
Josef Jurny, Sebranice, and Vaclav Sedlak, Jedovnice, both of Czechoslovakia, assignors to Adamovske Strojurny, narodni podnik, Adamov, Czechoslovakia

Filed May 17, 1972, Ser. No. 254,051

Claims priority, application Czechoslovakia, May 20, 1971, 3667/71

Int. Cl. B41f *13/24*

U.S. Cl. 101—232 **5 Claims**



An impression cylinder of a printing press is provided with a rotatable shaft journalled parallel to its axis. The shaft has at least two feelers mounted thereon which are resiliently urged upward out of the cylinder, so as to contact the sheet fed to the cylinder. The shaft and the feelers are provided with cooperating abutment means which cause the feelers to rotate the shaft in one direction. The shaft is provided with lever means at one of its exterior ends which cooperate with the tripping-off control means. The shaft is provided with spring means which rotates the shaft counter to the action of the feeler spring. The feeler spring has a force greater than that of the shaft spring so that in the absence of the effect of a paper sheet, the shaft is rotated to cause the lever means to activate the tripping-off mechanism but to be ineffective when a sheet is properly aligned on the cylinder and properly sensed.

3,782,281

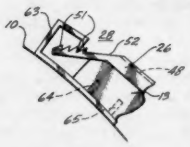
SELF-TENSIONING FLEXIBLE PRINTING PLATE

John C. Darnall, Jr., Van Nuys, Calif., assignor to The Time Mirrow Company, Los Angeles, Calif.

Filed Feb. 2, 1971, Ser. No. 111,884

Int. Cl. B41f *27/06, 27/12*

U.S. Cl. 101—415.1 **9 Claims**



A flexible printing plate is disposed on the surface of a rotating printing cylinder. The leading edge of the printing plate is secured to the printing cylinder so the leading edge is fixed in the direction toward the trailing edge of the printing plate by the engagement between a transversely elongated claw and a transversely elongated hook. The trailing edge of the printing plate is secured to the printing cylinder by a ratchet arrangement so the trailing edge is fixed in the direction toward the leading edge and is movable in the direction away from the leading edge by the engagement between one of a plurality of transversely elongated parallel serrations and a transversely elongated hook. As a rotating blanket cylinder disposed adjacent to the printing cylinder presses against the printing cylinder, the printing plate is tensioned. The hooks are set in from the printing surface of the plate and the portions of the plate between the printing surface and the leading and trailing edges are permanently deformed to angle inwardly toward the hooks. The claw and its hook are keyed to insure transverse registration. The serrations and the claw are parallel to insure circumferential registration.

3,782,282

ARMING DEVICE FOR A SUBMERSIBLE EXPLOSIVE WEAPON

Jan Bjork, Malmo, Sweden, assignor to Svenska Aktiebolaget Bromsregulator, Malmo, Sweden

Filed Mar. 22, 1972, Ser. No. 237,026

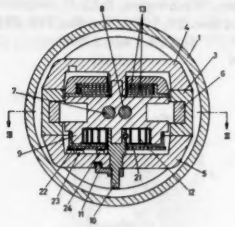
Claims priority, application Sweden, Mar. 31, 1971, 4165/71

Int. Cl. F42b *15/10*

U.S. Cl. 102—16 **5 Claims**

An underwater arming device responsive to water pressure comprises a rotating body including a printed circuit for elec-

trically actuating a detonator after a predetermined degree of rotation. A latch prevents rotation until water pressure ex-



ceeds a predetermined value. Rotation speed is controlled by a set of discs engaging a viscous medium.

3,782,283

DEFINED DISINTEGRATION OF THE CASING OF AN EXPLOSIVE ELEMENT

Paul Lingens, Leverkusen, and Gerhard Martin, Troisdorf, both of Germany, assignors to Dynamit Nobel Aktiengesellschaft, Troisdorf, Germany

Filed Aug. 5, 1971, Ser. No. 169,272

Claims priority, application Germany, Aug. 6, 1970, P 20 39 131.5

Int. Cl. F42d *1/00, 1/04*

U.S. Cl. 102—23 **29 Claims**

An explosive device and processing for causing, upon detonation, the defined disintegration of the casing of the explosive device. This result can be achieved directly by providing cavities in the explosive charge of the device which conduct the high velocity gas flow generated during the reaction of the explosive to predetermined points along the casing. Preferably the explosive charge has a central bore which connects radially extending gaps. Alternatively, a defined disintegration can be obtained indirectly by including cavities in the explosive charge of the device which are subdivided into chambers by either explosive or inert materials. Finally, a fuze trail of explosive wires can be incorporated into the explosive charge to yield the same effect. Moreover, the explosive charge can be employed as a primer charge and disposed inside a main charge which, in turn, is enclosed by a casing.

3,782,284

AIRCREW ESCAPE SYSTEMS

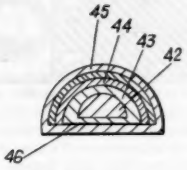
Robert David Gibb, Hessle; Donald Rowand Smith, Kirk Ella; Geoffrey Charles Wickenden, Hull; Graham Norman Galton, Kingston-upon-Thames, and Dennis Robert Shepherd, Bromley, all of England, assignors to Hawker Siddeley Aviation Limited, Surrey and Secretary of State for Defence of Great Britain, London, both of England

Filed Feb. 18, 1972, Ser. No. 227,433

Claims priority, application Great Britain, Feb. 19, 1971, 5,021/71

Int. Cl. C06c *5/04*

U.S. Cl. 102—27 R **7 Claims**



A detonating cord is provided, for causing fracture and break-up of an aircraft cockpit canopy for the purpose of emergency escape, consisting of an explosive core contained in a lead casing and surrounded by a plastic sheath, the cord being of substantially semi-circular or D-shaped cross-section. The semi-circular surface, but not the flat face, of the casing has several layers of lead tape applied to it within the plastic sheath which lead tape acts as blast-containing and reflecting material to direct the blast effect of the detonation preferentially through the flat-face.

3,782,285

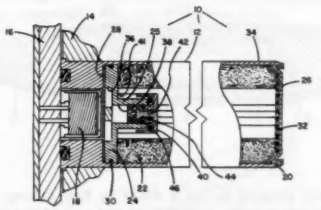
FLARE CARTRIDGE

Warren P. Froehner, China Lake, Calif., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Sept. 14, 1972, Ser. No. 289,201

Int. Cl. C06d *1/00*

U.S. Cl. 102—32 **2 Claims**

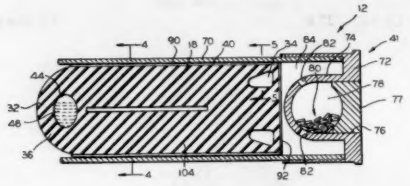


A simplified bore safe cartridge flare comprising a cartridge case configured for muzzle loading which may be easily manufactured by modern production methods allowing greater tolerance of dimensions with increased safety and reliability.

3,782,286
NON-LETHAL PROJECTILE AND LAUNCHER THEREFOR

Kenneth W. Jones, 205 Railroad, Clarendon Hills, Ill., and Edward H. Richie, 4327 Elm St., Downers Grove, Ill.

Division of Ser. No. 88,687, Nov. 12, 1970, Pat. No. 3,733,727.
This application Nov. 20, 1972, Ser. No. 308,010
Int. Cl. F42b 5/14, 5/22
U.S. Cl. 102—41 6 Claims

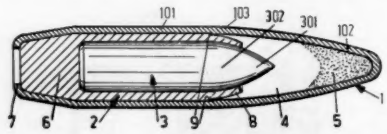


A non-lethal projector and launcher therefor for riot control and the like comprising a body formed from a relatively soft, pliant latex material compressed to projectile form and mounted within a restraining cup which in turn is mounted in a firing shell. The body at its rearward end includes retracted guidance structure that extends on the projectile being fired, a chamber at its forward end to receive a marking fluid for marking the target, and internal subdivisions in its mid portion designed to permit the body to expand laterally on impacting into a soft textured mass that flattens on impact to avoid injury to the target. The projectile launcher is in the form of a barrel assembly including a bell shaped muzzle which permits the projectile to be fired without jamming even when held against the target and braking slots for discharging the propelling gases rearwardly of the launcher to reduce recoil.

3,782,287
ARMOR PIERCING BULLET

Liep Swan Sie, Brandaris, Netherlands, assignor to Staatsbedrijf Artillerie Inrichtingen, Hembrug-Zaandam, Netherlands

Filed Oct. 26, 1971, Ser. No. 192,001
Claims priority, application Netherlands, Oct. 28, 1970, 7015837
Int. Cl. F42b 11/14, 13/04
U.S. Cl. 102—52 2 Claims



An armor piercing bullet is made by first forcing a hard metal core into a sleeve-shaped filler and embedding the core therein. Thereafter the filler and the core are forced, as one unit, into a soft metal bullet jacket. In this way a very good centering of the core within the bullet is obtained, which is necessary for stabilising the bullet in its trajectory. Furthermore, the forces exerted on a quantity of incendiary material which may be located in the jacket's tip are limited in this way so that the risk of spontaneous combustion of this material is decreased.

3,782,288
REMOVABLE FIRING PIN ASSEMBLY MUNITION

Aaron S. Berlin, Wilmington, Del.; Vincent C. Little, Fallston, and Toney Leadore, Havre De Grace, both of Md., assignors to The United States of America as represented by the Secretary of the Army, Washington, D.C.

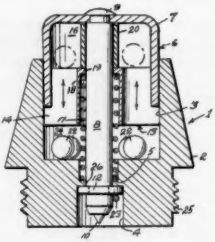
Filed Dec. 21, 1971, Ser. No. 210,422
Int. Cl. F42b 27/00
U.S. Cl. 102—64 3 Claims

A munition for delivery of a payload to an adverse target site wherein the munition has a firing pin assembly which separates from the munition after actuation of the primer means by the firing pin to prevent reuse of the firing pin assembly after delivery of the munition to the adverse target site.

3,782,289
DELAYING ARM FUZE PRINCIPLE

Onofrio P. Bruno, 237 Rogers St., Aberdeen, Md.

Filed Dec. 15, 1971, Ser. No. 208,061
Int. Cl. F42c 15/00
U.S. Cl. 102—76 R 2 Claims



A delay arming fuze for a fin stabilized mortar round or rocket for the prevention of premature arming of the fuze while the round is in the mortar tube. The fuze consists of a fuze head which has axial bores, a spring biased striker carrying a firing pin slidable in the bores, a radially slotted adapter carried by the striker and a plurality of steel balls which, when the round is in a mortar tube assume a position rearward of the adapter to maintain the fuze unarmed. When the round is fired acceleration forces hold the balls in their rearward position until the round decelerates, at which time the balls under inertial forces roll forward through the radial slots in a metered manner to the forward side of the adapter to arm the fuze and to thereby permit firing upon target impact. The metering effect is produced by providing more balls than there are radial slots in the adapter so that all of the balls cannot enter the slots at the same moment. Relative movement between the round and the balls which are subjected to the same gravitational forces is due to the fact that the round is subjected to frictional resistance of the atmosphere through which it passes and therefore decelerates more rapidly than the balls which are not subjected to such resistance.

3,782,290

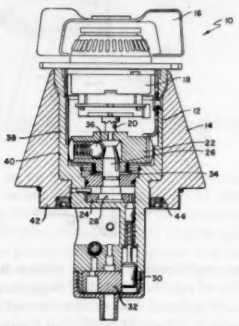
ORDNANCE ARMING ASSEMBLY

William H. Reams, Boonsboro, Md., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Jan. 19, 1973, Ser. No. 219,064. The portion of the term of this patent subsequent to July 18, 1989, has been disclaimed.

Int. Cl. F42c *15/12*

U.S. Cl. 102—76 R 4 Claims



An arming assembly for an air-delivered ordnance vehicle comprising an arming device which is normally maintained in an unarmed mode capable of becoming armed in response to a predetermined stimulus. A collar member having a tapered configuration is positioned around the arming device to protect the device from any shocks which may cause injury to the explosive elements contained therein. The collar may be formed of 4340 steel hardened to a value of Rc 38.

3,782,291

ROTATABLE BRIDGE SWITCH FOR TRACKLESS AIR CUSHION VEHICLE

Richard L. Maison, San Diego, Calif., assignor to Rohr Industries, Inc., Chula Vista, Calif.

Filed Apr. 3, 1972, Ser. No. 240,422

Int. Cl. E01b *25/26*

U.S. Cl. 104—130 12 Claims

A bridge switch with a body having a right triangular cross section is positioned between a main guideway and a pair of other guideways for rotation about a canted axis passing through the center of gravity of the body. A pair of guideway sections are provided and the body extending in different directions and each is positioned on one of the right angle sides of the body and carrying a reaction rail. A pair of containers are mounted on the body and a pump and motor arrangement is provided for transferring liquid from one container to the other at will to rotate the body to align each of the guideway sections with the main guideway and one of the other guideways to define a pair of switch positions. Solenoid locking pins are provided for locking and provided for locking and unlocking the body in each of the switch positions. A rotary dash pot connected to the body pivot limits rotational velocity of the body when rotated. Dash pots are utilized for stopping rotation of the body at each of the switch positions.

3,782,292

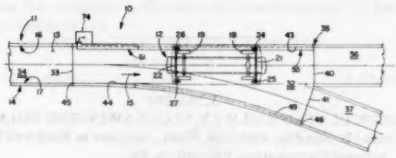
SWITCHING SYSTEM FOR A TRANSPORTATION SYSTEM EMPLOYING A GUIDEWAY

John M. Metcalf, Dallas, Tex., assignor to LTV Aerospace Corporation, Dallas, Tex.

Filed Nov. 29, 1971, Ser. No. 202,753

Int. Cl. E01b *23/12*

U.S. Cl. 104—130 30 Claims



A switching system for a transportation system of the type employing a guideway and vehicles adapted to travel along the guideway. A guideway junction is provided having a first end communicating with a first portion of the guideway and having a bifurcated, second end communicating with second and third, mutually diverging portions of the guideway. A movable guide rail is positioned adjacent the first end of the junction and pivotable between first and second positions for initially guiding a vehicle in a respective one of two directions upon the vehicle entering the junction from the junction first end. A fixed, guiding means is positioned between the movable guide rail and the second guideway portion and is operable to guide a vehicle through the junction and onto the second guideway portion upon the vehicle being initially guided by the movable guide rail while the movable guide rail is in its first position; and another fixed, guiding means is operable to guide a vehicle through the junction and onto the third guideway portion upon the vehicle being initially guided by the movable guide rail positioned in its second position. In one embodiment of the switching system, the movable guide rail is positioned by actuating means operable for moving the guide rail to a selected one of its two positions. In another embodiment adapted particularly to accomodate vehicles entering the junction from the second or third guideway portions, the movable guide rail is normally held in its first position by positioning means operable for resiliently urging the movable guide rail to its first position, and is deflected to its second position by vehicles which enter the junction from the third guideway portion.

3,782,293

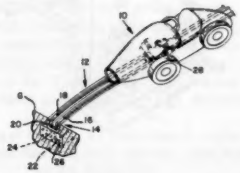
VEHICLE-TO-TRACK LINKAGE

Allen C. Donohue, Santa Clara; Albert O. Grote, and Bernard P. Tielborg, both of Fresno, all of Calif., assignors to Mini-Motor Speedways, Inc., San Francisco, Calif.

Filed Feb. 3, 1972, Ser. No. 223,172

Int. Cl. B61f *9/00*

U.S. Cl. 104—245 6 Claims



A linkage is disclosed for connecting a self propelled vehicle to horizontally oriented guide rollers rollably supported by

and between parallel pipe rails. The linkage includes a tongue plate with one end pivotally carried about a vertical pin secured to the guide roller support plate and the other end slidably and rotatably mounted on a horizontal rod secured to the undercarriage of the vehicle. The slidable tongue end is centered on the rod by a pair of opposing compression springs entwined on the shaft so as to urge the plate to its central position, yet permit the tongue to slide from one side of the shaft to the other when the vehicle departs from a course directly over the guide rails.

3,782,294

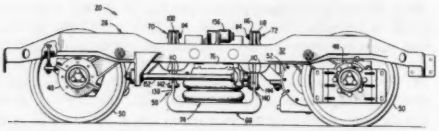
ARTICULATED RAILWAY TRUCK SWINGING BOLSTER

Gustav B. Sundby, Atchison, Kans., assignor to Rockwell International Corporation, Pittsburgh, Pa.

Filed Aug. 5, 1971, Ser. No. 169,231

Int. Cl. B61f *3/08, 5/10, 5/12*

U.S. Cl. 105—182 R **8 Claims**



Railway trucks which include front and rear wheel and axle assemblies, frame sections supported from said wheel and axle assemblies, spherical bearing assemblies connecting said frame sections for pivotal movement about a diagonal axis, spring seats supported from the side frames by articulated swing hangers, laterally deflectable spring assemblies on the spring seats, and a bolster supported by said spring assemblies.

3,782,295

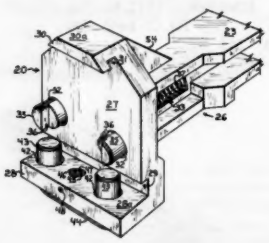
CARGO RESTRAINING BAR

Henry A. Balinksi, Hoffman Estates, Ill., assignor to United States Gypsum Company, Chicago, Ill.

Continuation-in-part of Ser. No. 79,583, Oct. 9, 1970, abandoned. This application May 9, 1972, Ser. No. 255,872

Int. Cl. B61d *45/00;* **B60p** *7/16*

U.S. Cl. 105—369 B **22 Claims**



A load bracing apparatus adapted to fit a multiplicity of the belt rail systems used to support and restrain freight in transportation vehicles such as railway freight cars, trucks and ships.

3,782,296

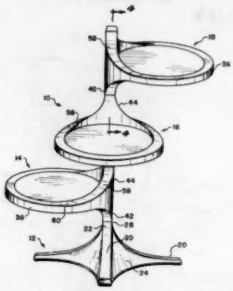
MODULAR MERCHANDISE DISPLAY DEVICE

Billy Moretini, Chicago, Ill., assignor to International Design Corporation, Chicago, Ill.

Filed Apr. 20, 1972, Ser. No. 245,969

Int. Cl. A47b *57/00*

U.S. Cl. 108—101 **13 Claims**



A modular merchandise display device having a pedestal and a plurality of cantilevered shelf units mounted one on the other upon said pedestal. The shelf units and the pedestal each include a vertical columnar formation having an end portion of square cross section arranged to abut the next adjacent formation, said formation having an axial channel suitable for receiving an elongate support member therethrough. The shelf units include a pair of opposite top and bottom arcuate wall portions each carrying said vertical columnar formation and being symmetrical about the horizontal axis thereof. The shelf units can be arranged in aligned, staggered or horizontally parallel relationship, or in a stair-step arrangement with a continuity of exterior surface being maintained overall.

3,782,297

DEVICE FOR DEPOSITING MONEY AND VALUABLE OBJECTS

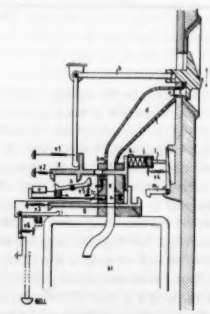
Christiaan Johannes Van Dalen, Voorburg, Netherlands, assignor to De Staat Der Nederlanden, Ten Deze Vertegenwoordigd Door De Directeur-Generaal Der Posterijen, Telegrafie En Telefonie, The Hague, Netherlands

Filed Aug. 18, 1971, Ser. No. 172,712

Claims priority, application Netherlands, Aug. 18, 1970, 7012148

Int. Cl. E05g *1/00*

U.S. Cl. 109—38 **5 Claims**



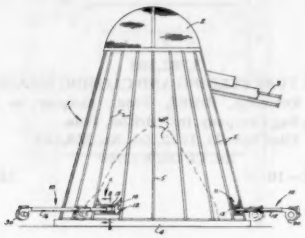
A deposit box, the entrance of which comprises means to ensure that only the desired objects can reach the box in the desired state and that inserted objects that may lead to damage cannot penetrate into the box.

3,782,298

IGNITER SUPPORT FOR A WASTE WOOD BURNER

Aubrey E. Wing, Springfield, Oreg., assignor to Industrial Construction Company, Inc., Eugene, Oreg.

Filed Jan. 17, 1973, Ser. No. 324,497
Int. Cl. F23g 7/00
U.S. Cl. 110—1 F 5 Claims



A support for an oil fired igniter unit mounted within the wall of a waste wood burner. The support includes pivot means supporting the elongate igniter for horizontal swinging movement and further includes roller means permitting inward and outward positioning of the igniter unit for efficiency purposes while permitting retraction of the igniter unit during formation of the waste pile.

3,782,299

METHOD FOR RENDERING REFUSE DEPOSITS, INDUSTRIAL WASTE AND THE LIKE, HARMLESS

Hans Egger, 811 Hagen b. Murnau, Haus Nr. 44, Hagen, Germany

Filed May 11, 1972, Ser. No. 252,223
Claims priority, application Germany, May 14, 1971, P 21 24 018.6
Int. Cl. F23g 5/00
U.S. Cl. 110—7 R 7 Claims

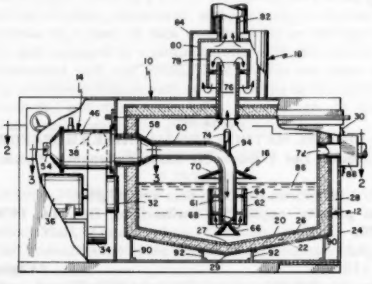
Refuse deposits and industrial wastes are rendered harmless by at least partially encasing them in a foam material. The refuse deposits and industrial wastes may also be permeated with the foam material. After encasement the coated deposits may be burnt.

3,782,300

HUMAN WASTE INCINERATOR

David J. White, Torrance, and Donald J. Dion, Lakeside, both of Calif., assignors to Mobile Systems International, Inc., El Cajon, Calif.

Filed Sept. 30, 1971, Ser. No. 185,213
Int. Cl. F23g 7/00
U.S. Cl. 110—8 R 8 Claims



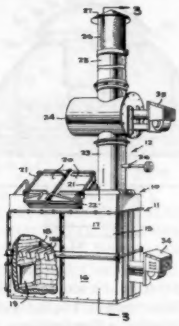
An incinerator for disposing of sewage that incorporates a combustor to develop high temperatures and an injection tube to deliver heat directly to the sewage. The sewage is vaporized and passes through a residence chamber. The residence chamber is raised to an elevated temperature of approximately 1600 degrees F. by gas from the combustor. This high temperature oxidizes any organic contaminates. The exterior surfaces of the device are maintained at close to ambient temperatures through the use of an induction system that brings the combustor air through a passage between the inner and outer tanks.

3,782,301

INCINERATOR WITH STACK TRANSITION CHAMBER

Paul Livengood, and Reuben L. Christophel, both of Harrisonburg, Va., assignors to Shenandoah Manufacturing Co., Inc., Harrisonburg, Va.

Filed Apr. 21, 1972, Ser. No. 246,463
Int. Cl. F23g 5/12
U.S. Cl. 110—8 C 8 Claims



An incinerator for disposing of biological or pathological wastes and other materials, including a refractory lined lower primary combustion chamber having an upper fill opening and a grate sub-dividing the primary combustion chamber into an upper chamber portion and a lower chamber portion, a first burner for producing combustion in the lower chamber portion, an exhaust gas outlet stack extending upwardly from the primary combustion chamber having a transition chamber interposed therein at a location spaced above the primary combustion chamber, the transition chamber and the outlet stack between the transition chamber and the primary combustion chamber being refractory lined, a secondary burner communicating with the transition chamber defining a secondary combustion chamber therein. The transition chamber defines a horizontal cylindrical chamber wherein the blower flame extends along its center axis and includes an interrupted cylindrical metallic baffle member spanning part of the axial length of the secondary combustion chamber and having a downwardly facing open segment.

3,782,302

METHOD OF THERMAL PURIFICATION OF WASTE NOT FORMING A BURNING MIXTURE WITH FUEL OR AIR SEPARATELY

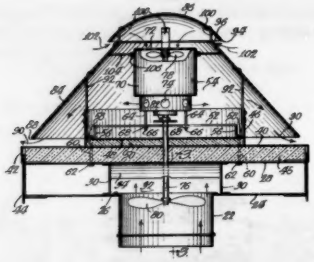
Isaak Yakovlevich Sigal, ulitsa Ezhena Petie, II, kv. 107; Georgy Fedorovich Naidenov, ulitsa Saratovskaya, 39, kv. 21; Nikolai Alexandrovich Gurevich, ulitsa Frunze, 118/2 kv. 13; July Iosifovich Danilevich, ulitsa Saksagankago, 112, kv. 10, all of Kiev; Andrei Matveevich Shiman, ulitsa Sadovaya, 2, kv. 2, Shebekino; Viktor Fedorovich Shishkin, Ulitsa B. Khmelnitskogo 8, kv. 7, Shebekino, and Nikolai Ivanovich Goncharenko, ulitsa Sadovaya 16, kv. 1, Shebekino, all of U.S.S.R.

Continuation of Ser. No. 42,864, June 2, 1970. This application Oct. 12, 1972, Ser. No. 297,065
Int. Cl. F23g 7/00
U.S. Cl. 110—8 R 5 Claims

A method of thermal purification of waste gases from impurities, mainly organic ones, consisting in burning them directly

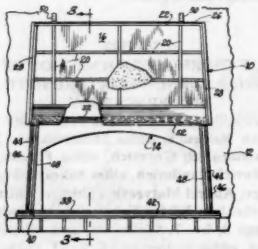
in the furnaces of boiler units including those whose main function is generation of thermal and electrical energy. The waste gases to be purified are delivered under, or into the beginning of, the fuel burning zone instead of part or all of the air required for the combustion of the fuel.

3,782,303
DRAFT INDUCER
Leo F. Pfister, Mendota, and Darold K. Rosenow, LaSalle, both of Ill., assignors to Conco, Inc., Mendota, Ill.
Filed July 6, 1972, Ser. No. 269,498
Int. Cl. F23l *17/16*
U.S. Cl. 110—162 **6 Claims**



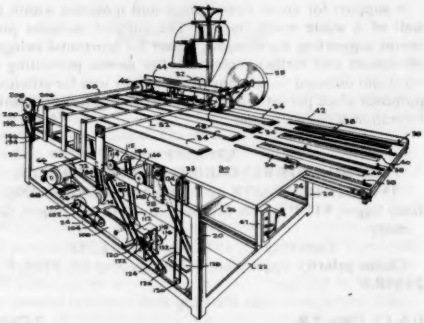
A draft inducer adapted to be secured to flues or the like to improve draft conditions therein. The inducer includes a tubular element to be secured to a flue and a gas directing housing located above the tube and in fluid communication therewith for directing gases radially outwardly of the tube at a high velocity. To assist in inducing the draft, a motor is located above the gas directing housing and includes a shaft extending into the tube and mounting a fan blade. Insulation is provided between the gas directing housing and the motor and a motor housing structured to insure excellent cooling of the motor is also included.

3,782,304
FURNACE DOOR ASSEMBLY
Joseph K. Balaz, Northbrook, Ill., assignor to Flinn & Draffein Engineering Co., Northbrook, Ill.
Filed Mar. 6, 1972, Ser. No. 232,047
Int. Cl. F23m *7/00, 7/02*
U.S. Cl. 110—173 **5 Claims**



This invention is addressed to an improved furnace door assembly including a furnace door having inwardly (toward the furnace) extending members substantially outlining the peripheral boundary of the door which, when the door is closed, form a sealing contact with corresponding outwardly extending members affixed to the furnace wall containing the door portal, said sealing surfaces being disposed perpendicular to the furnace wall containing the door portal and therefore substantially unaffected with respect to their fluid tightness by commonly encountered warpage of the door.

3,782,305
BAG TUBE FEEDING AND CLOSING MEANS
James A. Robinette, Bristol, Tenn., assignor to Strong-Robinette Bag Company, Inc., Bristol, Tenn.
Filed Nov. 21, 1972, Ser. No. 308,445
Int. Cl. D05b *13/00*
U.S. Cl. 112—10 **15 Claims**

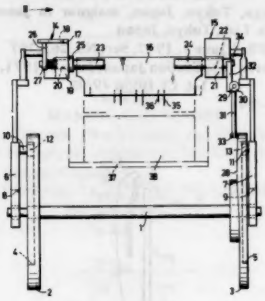


A feed table is disclosed for feeding successive bag tube ends past a sewing head for closing the tube ends; a work conveyor belt system feeds the bag tubes past the sewing head and a plurality of infeed chains with upwardly extending lugs feed successive bag tubes onto the work conveyor belt feed system with positive infinitely variable transmissions providing independent adjustment of the work belts and the infeed chains and microswitch means engageable with completed bags downstream of the sewing head for actuating a pneumatic knife to sever the tape section between adjacent bags with the infinitely adjustable transmission driving the infeed chains enabling conversion from one bag size to another while maintaining proper spacing between bags passing through the sewing head.

3,782,306
BOOK BINDING METHOD AND MACHINE THEREFOR
Fritz Bosshard, Zur Friedou CH-8251, Kaltenbach, Switzerland
Filed Dec. 13, 1971, Ser. No. 207,509
Claims priority, application Switzerland, Dec. 14, 1970, 18466/70;
Int. Cl. B42b *1/02*
U.S. Cl. 112—21 **7 Claims**

A swingable saddle supplies signatures to be bound, and a needle plate has at least one sewing needle and at least one hooked needle laterally spaced therefrom, the needle plate being mounted in two arms which can move it up and down between a position in which the needles enter into the signature and another in which they are withdrawn therefrom. The

needle plate can also be moved transversely to this up and down movement, being urged to one side by biasing means,



and can be moved in a direction opposite to the urging of the biasing means by a cam and cam follower arrangement. A method of operating this machine is also disclosed.

3,782,307

BUTTON HOLE ATTACHMENT FOR ZIGZAG SEWING MACHINES

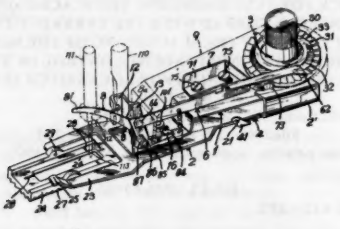
Susumu Hanyu, Tokyo, Japan, assignor to Janome Sewing Machine Co., Ltd., Tokyo, Japan

Filed Nov. 4, 1968, Ser. No. 773,198

Claims priority, application Japan, Nov. 6, 1967, 42/93245; Nov. 10, 1967, 42/94386

Int. Cl. D05b *3/24*

U.S. Cl. 112—77 **10 Claims**



A buttonhole attachment for a zigzag sewing machine having a laterally oscillating needle bar includes a lever means angularly reciprocated by a pin on the needle bar during the longitudinal stitching movement, and operating a ratchet wheel by means of a pawl. A rack member with an oblong endless inner gear engaged by a pinion turning with the ratchet wheel is connected with the presser foot so that the same moves along an oblong endless path corresponding to the outline of a buttonhole, and moves the fabric accordingly so that the laterally oscillating needle stitches a buttonhole.

3,782,308

SEWING UNIT HAVING A STENCIL RAIL FOR GUIDING THE MATERIAL

Gunther Mall, Kaiserslautern, Germany, assignor to Firma Pfaff Industriemaschinen GmbH, Kaiserslauten/Pfalz, Germany

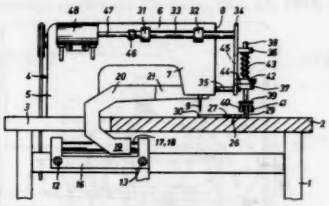
Filed May 1, 1972, Ser. No. 249,398

Claims priority, application Germany, May 3, 1971, G 71 16 976.1

Int. Cl. D05b *21/00*

U.S. Cl. 112—121.15 **3 Claims**

Sewing unit comprising a stencil bar driven in longitudinal direction having a pressure strip for sewing blanks and a guide bar which continuously is in frictional engagement with a guide means engaged by a support which effects movements superimposed laterally of the longitudinal direction which de-



pend on the form of the guide bar, where a support plate is movable transversely of and independently of the longitudinal movement of the stencil bar.

3,782,309

METHOD AND APPARATUS FOR MANUFACTURING ARTICLES OF CLOTHING

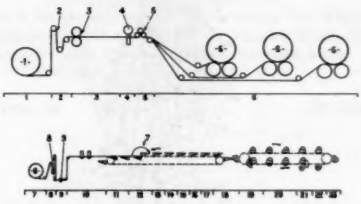
Harold Barry Lee, Heidelberg, Victoria, Australia, assignor to Bond's-Wear Pty. Limited, Camperdown, New South Wales, Australia

Filed Mar. 28, 1972, Ser. No. 238,783

Claims priority, application Australia, Mar. 30, 1971, PA 4452

Int. Cl. D05b *23/00*

U.S. Cl. 112—121.29 **20 Claims**



A method and apparatus for manufacturing garments in a continuous and automatic manner from strip material cut to provide profiled blanks. The method comprising the steps of traversing a blank on a first conveyor through a number of work stations to provide a semi-finished garment and then mechanically transferring it to a second conveyor for traverse through garment finishing stations.

3,782,310

SEWING MACHINE WTH EQUIPMENT FOR SEWING OF EDGE-PARALLEL SEAMS

Wilhelm Stockel, Hann-Munden, Germany, assignor to Pfaff Industriemachinen GmbH, Kaiserslautern/Pfalz, Germany

Filed Sept. 21, 1972, Ser. No. 290,880

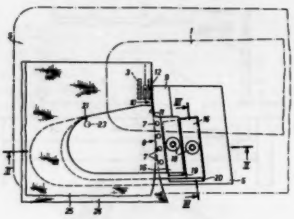
Claims priority, application Germany, Oct. 1, 1971, P 21 49 069.7

Int. Cl. D05b *35/10*

U.S. Cl. 112—153 **3 Claims**

The disclosure relates to a sewing machine including means for edge seaming together two or more layers of sewing material of any configuration comprising a succession of

spaced, superposed supporting plates between each adjacent pair of which a separate layer of sewing material to be seamed together is passed. Means associated with the supporting plates provide a straight guiding line running at an acute angle away from the stitch forming line and means on the forming



plates located in front of and laterally to the stitch forming means provide a fulcrum for pivoting the layer of sewing material passing therethrough so that the edge of each layer approaches and passes along said straight guiding line before being pulled into the stitch forming line.

3,782,311

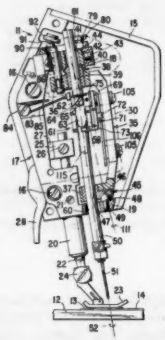
SIMPLIFIED BASTING STITCH MECHANISM

Kenneth D. Adams, Madison, N.J., and Salvatore A. D'Orio, Staten Island, N.Y., assignors to The Singer Company, New York, N.Y.

Filed Dec. 29, 1972, Ser. No. 319,426

Int. Cl. D05b *3/02*

U.S. Cl. 112—158 R **5 Claims**



A basting stitch mechanism in a zigzag sewing machine utilizing a latch carried by a needle bar selectively to connect and disconnect the actuating mechanism of the sewing machine to drive the needle bar in endwise reciprocation. To impart zigzag motion to the needle, the needle bar is supported for endwise reciprocation in a gate journaled for lateral oscillation about an axis inclined to the axis of needle bar reciprocation. This arrangement amplifies the relative motion between the needle bar and the gate so that it may be utilized during an extreme lateral excursion of the gate to trip the latch mechanism carried by the needle bar by means of an abutment member mounted on the gate. By mounting the gate in a supporting bracket which is attachable to the sewing machine, the gate, needle bar and basting stitch mechanism may be subassembled and partially adjusted prior to installation into the sewing machine with only simple adjustments required after installation.

3,782,312

TAKE-UP LEVER FOR A SEWING MACHINE AND PROTECTING COVER

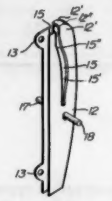
Noboru Kasuga, Tokyo, Japan, assignor to Janome Sewing Machine Co. Ltd., Tokyo, Japan

Filed June 1, 1972, Ser. No. 263,387

Claims priority, application Japan, June 9, 1971, 46/40193

Int. Cl. D05b *49/00*

U.S. Cl. 112—241 **7 Claims**



A thread take-up lever of a sewing machine is mounted in the hollow machine frame and has a hook-shaped free end engaging the sewing thread and being movable between an upper and a lower dead center position. The machine frame is formed in its front wall with an opening substantially closed by a cover protecting the hook-shaped end of the thread take-up lever and being formed with slots permitting insertion of a thread into the hook-shaped end of the lever in any position of the latter.

3,782,313

DEVICE FOR SYNCHRONIZING THE SLACKENING OF THE NEEDLE THREAD WITH THE THREADCUTTING, WITH TIMING OF THE SLACKENING OF THE NEEDLE THREAD AND INDEPENDENT CONTROL OF THE DELAY OF DISC OPENING FOR LOCKSTITCH SEWING MACHINES

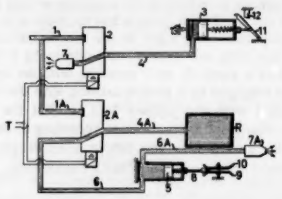
Cesare L. Conti, Via Varese 18, Milan, Italy

Filed Nov. 20, 1972, Ser. No. 308,297

Claims priority, application Italy, Nov. 24, 1971, 31523 A/71

Int. Cl. D05b *65/02*

U.S. Cl. 112—252 **3 Claims**



An electropneumatic device is disclosed for synchronizing the thread slackening mechanism of a lock stitch sewing machine with the cutting of the thread, said device being capable of controlling the delay in the opening of the thread tensioning discs independently of the stroke of the piston which actuates the thread cutter. In its simplest embodiment, the device comprises, in addition to a pneumatic thread cutting device and a pneumatic device for controlling the tension of the needle thread and a source of compressed air, two valve means, the first of which is connected to the thread cutting

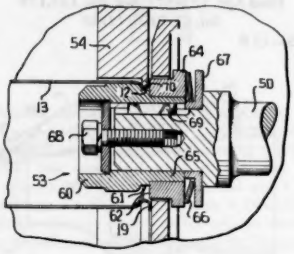
mechanism and to a flow restrictor, the second valve means being connected to the thread tension control mechanism and to a storage reservoir for compressed air.

3,782,314

MAKING CAN BODIES

Jozef Tadeusz Franek, Chorleywood, and Peter Rhodes, Watford, both of England, assignors to The Metal Box Company Limited, London, England

Filed Apr. 21, 1971, Ser. No. 135,862
Int. Cl. B21d 19/06
U.S. Cl. 113—1 G 11 Claims



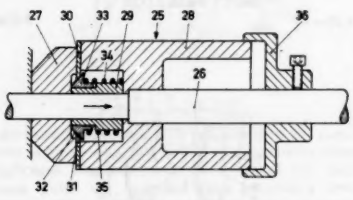
A metal can body is given an end neck by a two stage process in which it is first flanged, and then has the neck formed immediately behind and merging with the flange by a spinning (rolling) process in which the flange is itself reduced in diameter.

3,782,315

METHOD AND APPARATUS FOR PRODUCING A STEPPED RIM ON A SEAMLESS CAN BODY

Wolfgang Passenheim, Seesen/Harz, Germany, assignor to Swiss Aluminium Ltd., Chippis, Switzerland

Filed July 27, 1971, Ser. No. 166,464
Claims priority, application Switzerland, July 31, 1970, 11585/70
Int. Cl. B21d 51/26
U.S. Cl. 113—7 A 3 Claims



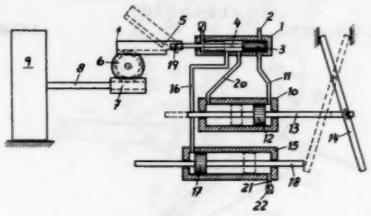
The invention refers to a method and an apparatus for producing a stepped rim on seamless can bodies by putting them on a rimming mandrel and applying a forming pressure by means of a cooperating roller, both mandrel and roller having parts movable eccentrically to their shaft during the forming of the rim, against the pressure of a spring.

3,782,316

ACTUATING DEVICE FOR SUBMARINE VEHICLES

Peter Schaloske, Oberhausen-Sterkr, and Erich Maurer, Oberhausen, both of Germany, assignors to Deutsche Babcock & Wilcox Aktiengesellschaft, Oberhausen/Rhld., Germany

Filed Nov. 3, 1971, Ser. No. 195,179
Claims priority, application Germany, Dec. 22, 1970, P 20 63 059.5
Int. Cl. B63g 8/00
U.S. Cl. 114—16 R 6 Claims



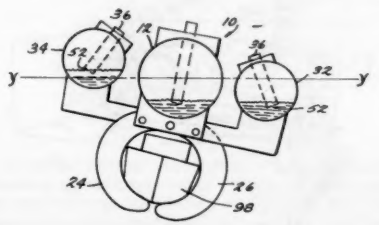
An actuating device for submarine vehicles in which power to control the vehicle is provided by apparatus responsive to the surrounding water pressure. At least one control cylinder, coupled to a wheel of the vehicle by a gear system, and at least one operating cylinder, coupled to a valve by a piston rod, are fluidly coupled together by a plurality of hose or pipe lines which selectively admit ocean-water surrounding the vehicle to the operating and control cylinders to control movement of the vehicle.

3,782,317

SUBMERSIBLE SALVAGE UNIT

Frederick A. Kriedt, 604 Aima St. S.E., Vienna, Va.; Thomas H. Sundstrom, 5712 Chippewa Rd., Virginia Beach, Va., and Richard Walko, 15913 Martin Rd., Roseville, Mich.

Filed Sept. 1, 1971, Ser. No. 177,074
Int. Cl. B63c 7/08
U.S. Cl. 114—52 20 Claims



A submersible salvage unit is provided with a central elongated pontoon to which are pivotally attached opposed pairs of downwardly depending arms for grasping a sunken vessel or other object. At points remote from their depending portions, the arms are connected to outer pontoons which can be actuated to move the arms from grasping to inoperative positions by relative vertical movement of these latter pontoons with respect to the central pontoon. The relative movements are effected by varying the buoyancy of the outer pontoons with respect to the central pontoon. Buoyancy compensators are provided in each of the pontoons to adjust their buoyancies to match the distribution of loads which are to be lifted, and for

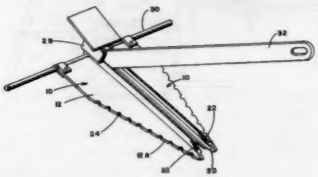
rapidly releasing buoyancy gas from the pontoons, if necessary, so that the buoyancy compensators on the pontoons also function as stabilizers to maintain the unit in a stable attitude when it is lifting a load. Self-contained gas generating means are provided to supply buoyancy gas to the interiors of the pontoons.

3,782,318

ANCHOR FLUKE

Daniel Comstock Hungerford, North Palm Beach, Fla., assignor to Brunswick Corporation, Skokie, Ill.

Filed Sept. 7, 1971, Ser. No. 178,231
Int. Cl. B63b *21/26*
U.S. Cl. 114—207 **3 Claims**



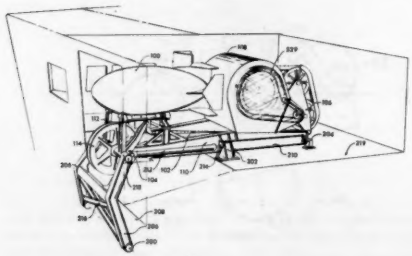
An anchor of the twin fluke type with increased penetrating ability for hard or vegetation covered under water bottoms wherein the fluke leading edges have a plurality of indentations and the fluke leading points have sharp edges and saw-like teeth adjacent the sharp edge portion.

3,782,319

APPARATUS FOR LAUNCHING, TOWING AND RECOVERING A SUBMERSIBLE BODY FROM A VESSEL

Neville E. Hale, Mississauga, Ontario, Canada, assignor to Fathom Oceanology Limited, Port Credit, Ontario, Canada

Filed Jan. 26, 1973, Ser. No. 327,003
Claims priority, application Canada, Feb. 29, 1972, 135768
Int. Cl. B63b *21/00*
U.S. Cl. 114—235 B **12 Claims**



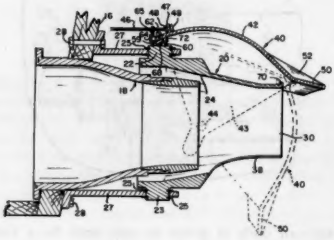
Apparatus for launching, towing and recovering a submersible and towable body from a vessel includes a saddle, a winch and cable spooling and tension apparatus. The saddle includes a roller box which is rotatable about the axis of the tow sheave to maintain constant pressure against the cable during towing. A skewable A-frame for lowering the saddle near the water surface includes a transom arm which is pivotally mounted to the transom and to the tow sheave. The winch may be a multi-drum assembly, where the drums are co-axially mounted; and the drums are rotatably mounted in peripheral bearings at each end, which are mounted in the ends of the winch enclosure. The winch enclosure has a cover plate with a transverse slot to permit reeling and unreeling of cable from a drum. A latch mechanism provides for positive locking of a drum for rotation or non-rotation, depending on whether it or another drum is the one on which cable is being reeled or unreeled. The drums of a multi-drum assembly also have a transverse slot formed in them; and the lips of each slot are profiled to turn inwardly with a smaller apparent radius of curvature than the nominal radius of the drum.

3,782,320

CONTROL ASSEMBLY FOR JET BOAT

Richard N. Groves, Jr., 2619 Cambridge St., West Lafayette, Ind.

Filed Apr. 12, 1971, Ser. No. 133,179
Int. Cl. B63h *11/00*
U.S. Cl. 115—12 R **8 Claims**



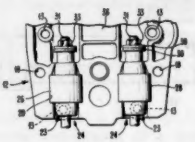
A control assembly for a boat having a water jet propulsion system in which the jet is discharged successively through a discharge conduit and a nozzle. The nozzle, which is movable with respect to the conduit, is provided with movable bucket whereby said nozzle and bucket are movable into different positions of adjustment to control the jet for thus controlling the steering, fore and aft movements, and desired planing of the boat.

3,782,321

MOUNTING ARRANGEMENT FOR AN OUTBOARD MOTOR

Raymond L. Ellingsen, Oshkosh, Wis., assignor to Brunswick Corporation, Skokie, Ill.

Filed July 26, 1972, Ser. No. 275,231
Int. Cl. B63h *21/30*
U.S. Cl. 115—17 **5 Claims**



The upper resilient mounts for connecting the power unit of an outboard motor to the swivel bracket are supported within cavities formed by cooperating semi-circular recesses in the driveshaft housing plate and the exhaust extension plate.

3,782,322

FIELD MARKING SYSTEM AND A MARKER THEREFOR

Porter Carol Wilson, Box 11010, Tucson, Ariz.

Filed Sept. 28, 1970, Ser. No. 75,919
Int. Cl. E01f 9/10
U.S. Cl. 116—63 P 2 Claims

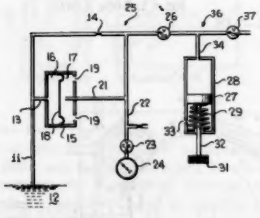
Predetermined distances are visually marked by a plurality of markers so arranged that a progressively varying distance from a predetermined point is designated by a progressively darker color. The individual markers comprise a hollow, nestable, substantially conical base provided with a receptacle means in the upper surface of said base; a flexible shaft one end of which is adapted to removably engage the receptacle means; and an indicator means affixed to the other end of the shaft.

3,782,323

SELF CONTAINED FLUIDIC LEVEL SENSOR

Donnie Roland Jones, Silver Spring, Md., assignor to Bowles & Fluidics Corporation, Silver Spring, Md.

Filed June 9, 1972, Ser. No. 261,381
Int. Cl. G01f 23/00
U.S. Cl. 116—118 R 10 Claims



A pressure pulse, selectively initiated from the dashboard of a motor vehicle, is applied to two compartments separated by a diaphragm. One compartment is vented and receives the pressure pulse via a sensor tube extending toward the diaphragm. The second compartment communicates with a dip tube extending to the sensing level in the vehicle oil reservoir. If the oil is above the dip tube, the diaphragm is flexed by the pressure pulse and blocks the sensor tube so that the pulse cannot be vented. The pulse is thus shunted to a pressure responsive indicator which provides a momentary indication that the oil level is above the sensing level. If the oil is below the dip tube, the pressure pulse is vented through the dip tube and sensor tube, rendering the indicator unactuated.

3,782,324

METER DIAL WITH MIRROR IMAGE PORTION

Stanley A. Zembaty, Hickory, N.C., assignor to General Electric Company

Filed Nov. 29, 1972, Ser. No. 310,399
Int. Cl. G09f 9/00
U.S. Cl. 116—129 T 3 Claims

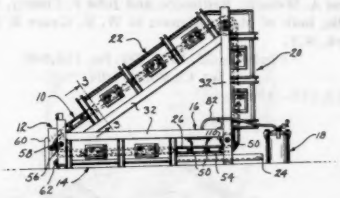
A meter dial provided with one portion directly readable and a second portion a mirror image of the first portion, such that the meter dial may be read either normally or by means of a mirror.

3,782,325

WINDING IMPREGNATION SYSTEM

Le Moyne E. Farnsworth, Racine, and Lawrence A. Johnson, Milwaukee, both of Wis., assignors to Ro-Band Corporation, Menomonee Falls, Wis.

Filed Jan. 17, 1972, Ser. No. 218,196
Int. Cl. B05b 13/02; B05c 5/02
U.S. Cl. 118—58 5 Claims



An endless conveyor chain is fitted with a plurality of longitudinally spaced fixtures which are adapted to carry electrical motor windings. The windings are carried by the conveyor chain from a load/unload station through a horizontal heating chamber for preheating the windings, then under an applicator station which applies a varnish coating to the windings, then through a heating chamber which is disposed in a generally upright plane adjacent to the applicator station, and then through a diagonal heating chamber which extends diagonally from the top of the upright heating chamber to the load/unload station. The upright heating chamber is long enough to allow the varnish to jell on the windings so that there will be no drippage in the diagonal heating chamber. A drip pan is positioned under the applicator station and under the bottom end of the upright heating chamber to catch any drippage in those two areas, the heating means in the upright chamber being at a side of the upwardly moving windings so as to be out of the path of drippage.

3,782,326

PRIMARY WATER QUENCH

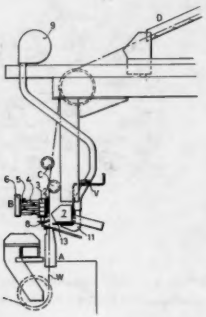
Neville Charles Faggotter, Miranda, New South Wales, Australia, assignor to Australian Wire Industries Proprietary Limited, Melbourne, Victoria, Australia

Filed Mar. 13, 1972, Ser. No. 234,002

Claims priority, application Australia, Mar. 16, 1971, 4328/71

Int. Cl. B05c *11/00*

U.S. Cl. 118—67 12 Claims



This specification discloses an apparatus for freezing the molten zinc coating on a moving wire after it issues from a wiping box for controlling the coating, comprising two or more water discharge passages for forming jets of water spaced along and transversely intersecting the line of movement of the wire, said jets being controlled whereby the flow of water in each jet is non-turbulent, and an air discharge duct having a narrow discharge slit for creating a flow of air directed transversely to the line of movement of the wire between said jets and the wiping box.

3,782,327

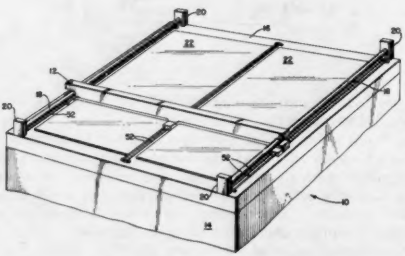
APPARATUS FOR LAYERING A LIQUID COMPOSITION

Forrest A. Wessells, Baltimore, and John P. Conrey, Marriottsville, both of Md., assignors to W. R. Grace & Co., New York, N.Y.

Filed Feb. 23, 1971, Ser. No. 118,040

Int. Cl. B05c *11/04*

U.S. Cl. 118—100 1 Claim



The invention disclosed is directed to a device for layering a liquid photocurable composition. The device includes an elongate body having along its lower end a recess for spreading liquid composition, and includes arms attached adjacent recess sides for preventing spreading beyond sides of a region which may be traversed by the recess. When used in combination with an assembly also disclosed, the device forms liquid photocurable composition into layers of close tolerance thickness from which articles such as polymeric printing plates may be formed.

3,782,328

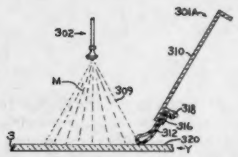
SQUEEGEE /SHIELD

Helmut Franz, Pittsburgh, Pa., assignor to PPG Industries, Inc., Pittsburgh, Pa.

Division of Ser. No. 159,747, July 6, 1971. This application Jan. 18, 1973, Ser. No. 324,730

Int. Cl. B05c *11/04*

U.S. Cl. 118—118 23 Claims



A transparent substrate to be spray coated passes beneath a squeegee/shield apparatus to avoid formation of finger-like fronts or puddles in the spray area and to prevent splashing of the spray medium onto the substrate surface. The squeegee/shield element functions to doctor a prior applied coating while intercepting of portion of the subsequent spray stream.

3,782,329

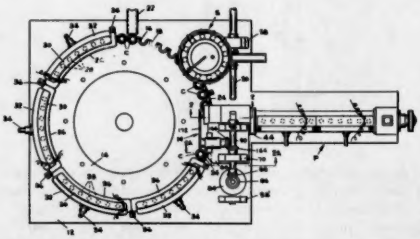
APPARATUS FOR DISPENSING PLASTIC MATERIAL OR THE LIKE

George Everett, Unionville, Conn., assignor to Gros-Ite Industries, Inc., Farmington, Conn.

Continuation-in-part of Ser. No. 91,665, Nov. 23, 1970, abandoned. This application Feb. 9, 1972, Ser. No. 224,757

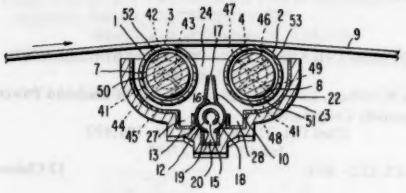
Int. Cl. B05c *7/00*

U.S. Cl. 118—215 12 Claims



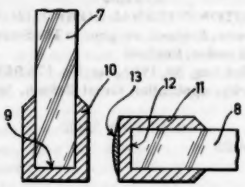
Plastic dispensing apparatus in which charges of plastic material are deposited in successive caps carried by a conveyor, the plastic material being metered and delivered by a blade which executes coordinated rotational and translational movement to controllably deposit the plastic charges in deeply recessed caps.

3,782,330
WEB MOISTENING DEVICE
Masao Kanda, Fujimiya-shi, Shizuoka, Japan, assignor to Fuji Photo Film Co., Ltd., Kanagawa, Japan
Continuation-in-part of Ser. No. 827,679, May 26, 1969, abandoned. This application July 12, 1971, Ser. No. 161,813
Int. Cl. B05b *13/02*; **B05c** *5/00*
U.S. Cl. 118—325 **4 Claims**



A steam jet nozzle is disposed between a pair of cylindrical rollers whose peripheries are in contact with a moving web to form in conjunction with a housing on the opposite side of the roller from the web, a steam chamber to insure moistening of the web. A fluid contacts the inner surface of the cylindrical roller to insure condensation of the steam on the roller periphery which in turn moistens the moving web.

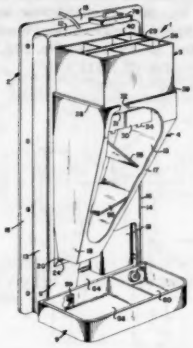
3,782,331
TRANSPARENT SHEET
Ebe Huizinga, 35, De Kromte, Drachten, Netherlands
Filed Mar. 3, 1972, Ser. No. 231,602
Claims priority, application Netherlands, Mar. 10, 1971, 7103168
Int. Cl. A01k *64/00*
U.S. Cl. 119—5 **5 Claims**



A transparent sheet, particularly a glass plate, which may form part of a receptacle, in particular an aquarium, comprising a bottom plate and marginal profiles, in which the glass plates are interconnected via sealing material, whereas the edges of the plates are surrounded by profiles obtained by spraying plastics or elastomer material (consisting a.o. of silicon rubber, thermoplastic etc.), the spray-edged profiles being sealingly interconnected thereby.

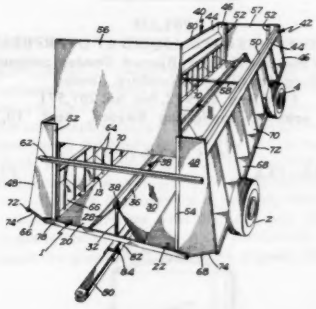
3,782,332
AUTOMATIC FEEDING DEVICE
Fritz Depenthal, 6506 W. 66th St., Overland Park, and Karl M. Swartz, 6034 Windsor Dr., Shawnee Mission, both of Kans.
Filed Sept. 18, 1972, Ser. No. 290,011
Int. Cl. A01k *5/02*
U.S. Cl. 119—51.13 **8 Claims**

A feeding device for the automatic feeding and watering of cats, dogs and the like. The feeding device includes a food container having a plurality of individual food storage compartments mounted on a delivery chute for delivering food from each compartment to a feeding pan upon selectively opening of closure members normally closing the respective



compartments. The feeding device also includes a watering device comprising a water storage container and a valve operably connected to the water storage container and a watering pan for supplying water from the container to the watering pan on demand.

3,782,333
LIVESTOCK FEEDER
Leon G. Feterl, Salem, S. Dak.
Filed Dec. 23, 1971, Ser. No. 211,293
Int. Cl. A01k *05/00*
U.S. Cl. 119—52 R **4 Claims**



A wagon feeder for livestock having feed troughs extending along both sides thereof, with the feed troughs being divided by upright plates into horizontally spaced feed compartments which communicate with flat feed accumulating and feeding floor segments interiorly of the feeder through open bottom portions of upright side walls of the feeder. The open portions of the feeder side walls are divided into a plurality of livestock feeding spaces within each of the feeding compartments by upright bars.

3,782,334

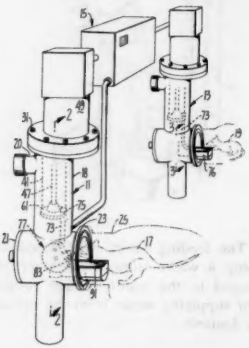
AUTOMATIC REAL-TIME PAIR-FEEDING SYSTEM FOR ANIMALS

Henry A. Leon, Los Altos; James P. Connolly, San Jose; Maurice J. Hitchman, Saratoga, and John E. Humbert, Santa Clara, all of Calif., assignors to The United States of America as represented by the Administrator of the National Aeronautics and Space Administration, Washington, D.C.

Filed Nov. 30, 1971, Ser. No. 203,271

Int. Cl. A01k 5/02

U.S. Cl. 119—54 4 Claims



A pair-feeding method and apparatus are provided for experimental animals wherein the amount of food consumed by the experimental animal is immediately delivered to a normal or control animal so that there is a qualitative, quantitative and chronological correctness in the pair-feeding of the two animals. The invention also provides a novel feeding mechanism for delivering precisely measured amounts of food to a feeder. Circuitry is provided between master and slave feeders so that there is virtually no chance of a malfunction of the feeding apparatus, causing erratic results. Recording equipment is also provided so that an hourly record is kept of food delivery.

3,782,335

HEAT EXCHANGER FOR LIQUID AT OVERPRESSURE

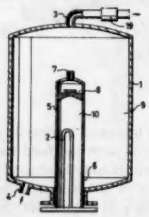
Bengt-Olof Ingemar Hecktor, Bjarred, Sweden, assignor to AB Gustavsbergs Fabriker, Gustavsberg, Sweden

Filed Sept. 8, 1972, Ser. No. 287,571

Claims priority, application Sweden, Sept. 10, 1971, 11473/71

Int. Cl. F24h 1/20

U.S. Cl. 122—13 A 11 Claims



A heat exchanger for liquid under pressure in which a casing is divided by a partition into large and small chambers, with a heat surface being located within the small chamber and the chambers being in communication via an opening. The upper portion of the partition is provided with a valve means for conducting gas from the small chamber to the large chamber, with the valve means being so constructed that the difference in pressure between the gas-filled upper portion of the small chamber and the corresponding level in the large chamber, and which pressure arises upon the opening of an outflow valve for the outlet of the large chamber, is sufficient for pressing at least a part of the gas included in the small chamber out through the valve member.

3,782,336

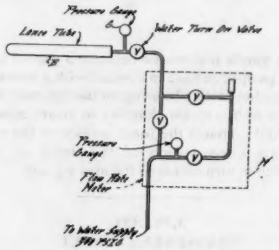
METHOD AND APPARATUS FOR CLEANING HEATED SURFACES

John E. Nelson, Lancaster, Ohio, assignor to Diamond Power Specialty Corporation

Filed Oct. 21, 1971, Ser. No. 191,422

Int. Cl. F22b 37/48

U.S. Cl. 122—379 12 Claims



A method and apparatus for deslagging high temperature water walls of boilers while steaming, utilizing a jet of water applied in such manner as to develop sufficient mechanical energy to dislodge the slag without chilling the wall to a harmful degree.

3,782,337

ROTARY PISTON INTERNAL COMBUSTION ENGINE

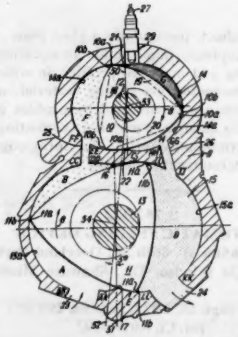
Fritz Feller, Crewe, England, assignor to The Secretary of State for Defense, London, England

Filed Aug. 30, 1971, Ser. No. 176,059

Claims priority, application Great Britain, Sept. 1, 1970, 41,709/70

Int. Cl. F02b 53/00

U.S. Cl. 123—8.05 6 Claims



A rotary piston engine has two pistons mounted in two communicating housings. The pistons are disposed in the order of

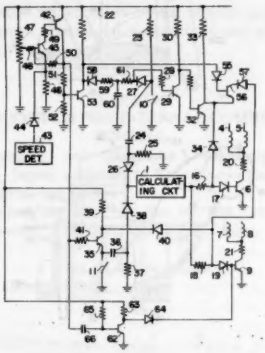
180° out of phase and the eccentrics for the housings are slightly offset from each other to improve the positioning of the communicating ducting between the housings.

3,782,338

FUEL INJECTION CONTROL ARRANGEMENT FOR INTERNAL COMBUSTION ENGINES

Fusao Hayashi, and Yasunori Mori, both of Hitachi, Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Feb. 8, 1971, Ser. No. 113,268
Claims priority, application Japan, Feb. 6, 1970, 45/9942
Int. Cl. F02b *3/00*
U.S. Cl. 123—32 EA **16 Claims**



A fuel injection control arrangement for internal combustion engines, wherein a calculating circuit is triggered in response to a signal produced by the fuel-supply timing of the internal combustion engine, which determines the time required for injecting fuel in accordance with the engine operating condition at that time, and at the same time a plurality of gate circuits for controlling the electromagnetic valves associated with the cylinders to be supplied with fuel are selectively controlled in sequence by the signal, characterized in that, when the rotating speed of the engine exceeds a predetermined value, each of the gate circuits is controlled collectively by said signal and the duration for which the gate circuits are actuated is increased.

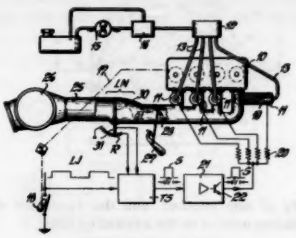
3,782,339

AIR METER SWITCHING ARRANGEMENT FOR AN ELECTRIC FUEL INJECTION SYSTEM

Hermann Scholl, Stuttgart; Harald Mauch, Korntal; Norbert Rittmannsberger, Stuttgart, and Wolfgang Soll, Dieburg, all of Germany, assignors to Robert Bosch GmbH, Stuttgart, Germany

Filed July 20, 1971, Ser. No. 164,304
Claims priority, application Germany, Nov. 26, 1970, P 20 58 089.6
Int. Cl. F02m *51/00*
U.S. Cl. 123—32 EA **14 Claims**

An electromagnet, energized only when the engine operates at full load and high r.p.m., attracts the static plate of the air meter out of the air path of the engine intake manifold. A switch, operated by the static plate only when the latter is pivoted to at least the idling position, is associated with a circuit that insures that the fuel pump operates only when the engine is turning over.

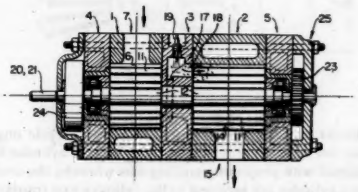


3,782,340

GEAR-TYPE ROTARY ENGINE

Joong Woo Nam, 170-152 Rimoon-dong Dongdaemoon, Seoul, South Korea

Filed Feb. 4, 1972, Ser. No. 223,474
Int. Cl. F02b *53/08*
U.S. Cl. 123—8.23 **3 Claims**



A gear-type rotary engine having partitioned compression and combustion cylinders and communicable through a gas inlet and a ignition chamber positioned therebetween, a set of gear-like rotors accomodated respectively in the compression and combustion cylinders secured fixedly on two different rotor shafts in twisted positions from one another so that the transmission of compressed gas by the set of rotors in the compression cylinder in their respective gear-like rotation in opposite direction coincides with the reception of the compressed gas by the set of rotors in the combustion cylinder in their respective gear-like rotation in the opposite direction.

3,782,341

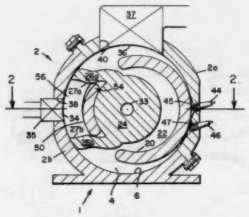
ROTARY INTERNAL COMBUSTION ENGINE

Thomas M. Eells, 10680 W. Pico Blvd., Rm. 260, Los Angeles, Calif.

Filed Apr. 6, 1972, Ser. No. 241,659
Int. Cl. F02b *55/14*
U.S. Cl. 123—8.45 **8 Claims**

A rotary internal combustion engine is described wherein a rotor wheel with rigidly extending vanes is mounted in a piston

drum, the vanes being slidably fitted in slots in the drum. The wheel and drum rotate together within the engine housing and

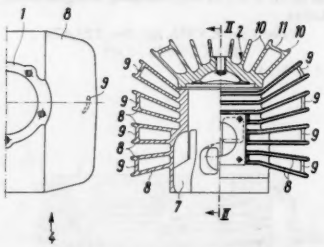


eccentrically of one another, and the vanes are shaped to allow free sliding motion in the unyielding slots.

3,782,342
CYLINDER UNIT FOR AN AIR-COOLED TWO-STROKE-CYCLE ENGINE

Gunther Schier, Pfaffingen, Germany, assignor to Maico Fahrzeugfabrik GmbH, Pfaffingen, Germany

Filed Nov. 15, 1972, Ser. No. 306,876
Claims priority, application Germany, Nov. 16, 1971, P 21 56 754.4
Int. Cl. F02f *1/06, 1/30*
U.S. Cl. 123—41.69 **17 Claims**

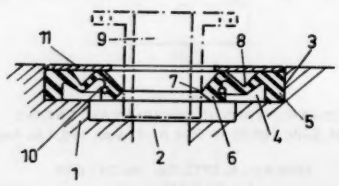


A cylinder unit for an air-cooled two-stroke-cycle engine, especially for motorcycles, whose cylinder and cylinder head are equipped with projecting cooling ribs whereby the cooling ribs of the cylinder are inclined to the cylinder axis transversely to the approach flow direction of the cooling air in such a manner that the spacings of these cooling ribs increase from the inside toward the outside, i.e., from the cooling rib bottom toward the free edges thereof.

3,782,343
CARBURETOR MOUNTING

John Arthur Notaras, and Angelo Lambrinos Notaras, both of 15-21 Reynolds St., Balmain, New South Wales, Australia

Filed Aug. 7, 1972, Ser. No. 278,384
Int. Cl. F02b *77/00, 77/12*
U.S. Cl. 123—52 M **5 Claims**

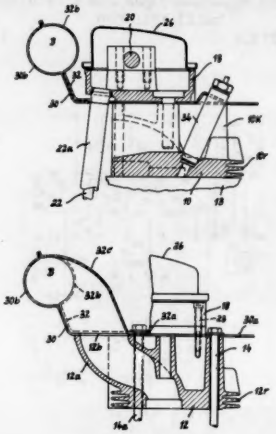


A mounting assembly for a carburettor, the assembly including a seal made of heat insulating material housed in an opening in an engine block or manifold and sealing against the outside of a delivery tube from the carburettor.

3,782,344
INTERNAL COMBUSTION ENGINE

Johann Schmuck, Feilnbach, Germany, assignor to Motorenfabrik Hatz KG., Ruhstorf, Germany

Filed May 12, 1972, Ser. No. 252,915
Claims priority, application Germany, June 15, 1971, P 21 29 738.1
Int. Cl. F02f *1/30, 7/00*
U.S. Cl. 123—52 M **1 Claim**



In an internal combustion engine having at least one cylinder defined by a cylinder head and a cylinder block, attaching means connecting said cylinder head to said cylinder block, said cylinder including a combustion chamber, intake and exhaust ports communicating with said combustion chamber and a connection means connecting said ports to a pipe, the improvement which comprises forming said pipe and connection means of at least two molded elements which are held on the engine in the required operational position by the attaching means connecting together said cylinder heads to said cylinder block.

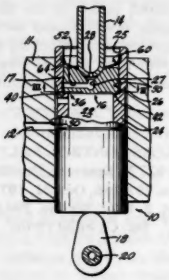
3,782,345
METERED MECHANICAL TAPPET WITH SLOTTED PUSH ROD SEAT

Ronald R. Erickson, and Richard D. Cornell, both of Muskegon, Mich., assignors to Johnson Products, Inc., Muskegon, Mich.

Division of Ser. No. 29,915, April 20, 1970, Pat. No. 3,614,942. This application June 3, 1971, Ser. No. 149,483
Int. Cl. F01l *1/14;* **F01m** *9/10*
U.S. Cl. 123—90.35 **4 Claims**

A metered mechanical tappet utilizing a push rod seat permanently retained by a separate retainer or by a press-fit within the cavity of the tappet upon an annular shoulder of t he latter. Oil flow is obtained by a slot in the surface of the seat supported by said shoulder, the slot at least extending radially from the oil reservoir directly below the seat to the outer wall of the seat, from whence it passes to the interior of the seat and to the push rod by means of an annular path between the outer seat wall and the cavity along at least a portion of the

axial extension of the seat. The actual metering is accomplished by either the slot, in which case the annular path has a



substantial radial thickness; or by the annular path, in which case its thickness is considerably less than any of the dimensions of the slot.

3,782,346

INTAKE SYSTEM FOR INTERNAL COMBUSTION ENGINE

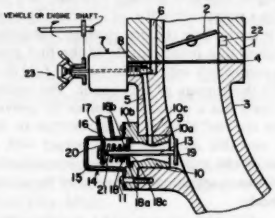
Yasuo Tatsutomi, and Shigetake Yoshimura, both of Hiroshima, Japan, assignors to Toyo Kogyo Co., Ltd., Aki-gun, Hiroshima-ken, Japan

Filed Mar. 29, 1971, Ser. No. 128,723

Claims priority, application Japan, Mar. 30, 1970, 45/30590

Int. Cl. F02m *7/04*

U.S. Cl. 123—97 B **19 Claims**



An intake system for an internal combustion engine which is effective to maintain the air-fuel mixture ratio at an appropriate value even when the engine is decelerated, so that complete combustion of the air-fuel mixture can be achieved with substantial elimination of noxious unburned compounds normally present in an exhaust gas emerged from the exhaust system of the engine. In addition, since complete combustion can be achieved, the occurrence of an after-burning in the exhaust system can be advantageously prevented.

3,782,347

METHOD AND APPARATUS TO REDUCE NOXIOUS COMPONENTS IN THE EXHAUST GASES OF INTERNAL COMBUSTION ENGINES

Peter Jurgen Schmidt, and Harald Kizler, both of Schwieberdingen, Germany, assignors to Robert Bosch GmbH, Gerlingen-Schillerhohe, Germany

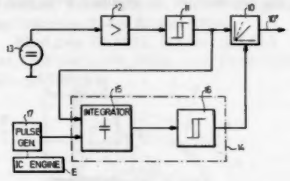
Filed June 2, 1972, Ser. No. 259,254

Claims priority, application Germany, Feb. 10, 1972, P 22 06 276.6

Int. Cl. F02d *5/02*

U.S. Cl. 123—119 R **13 Claims**

The composition of exhaust gases from internal combustion engine is sensed, particularly the oxygen component thereof, and a sensed signal is derived, which is applied to a threshold detector, which triggers whenever the sensed signal passes a certain threshold value. The trigger signal controls and integrating controller to commence integrating, the integrating controller providing an output signal which is applied to set the air-fuel ratio such that the air number lambda is constantly



controlled to be about 1. If integration by the integrating controller persists for a period of time in excess of a predetermined lapsed time, as determined by a pulse source controlled by speed of the engine, the integrating rate of the integrating controller is changed to provide for more rapid response when large changes have to be compensated.

3,782,348

COMBUSTION ENGINE CONSTRUCTION

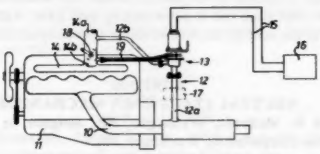
Ernst Linder, Muhlacker, Germany, assignor to Robert Bosch GmbH, Stuttgart, Germany

Filed June 26, 1972, Ser. No. 266,442

Claims priority, application Germany, July 28, 1971, P 21 37 694.3

Int. Cl. F02m *25/06*

U.S. Cl. 123—119 A **10 Claims**



An intake conduit in a combustion engine admits a stream of combustion air and has a throttle interposed in it. An exhaust conduit exhausts combustion gases from the engine. A first passage communicates with the intake conduit downstream of the throttle and a second passage communicates with the intake conduit upstream of the throttle. A third passage communicates with the exhaust conduit. A valve is connected with the three passages and movable between one position in which it connects the second and the third passage and another position in which it connects the first and the second passage.

3,782,349

INTAKE AIR TEMPERATURE AUTOMATIC ADJUSTING DEVICE AND AIR CLEANER WITH SUCH DEVICE FOR INTERNAL COMBUSTION ENGINES

Hideo Kamo, Chiryo; Hajime Akado, Karaiya, and Yasutosi Kato, Anjo, all of Japan, assignors to Nippondenso Co., Ltd., Kariya-shi, Aichi-ken, Japan

Filed Oct. 20, 1972, Ser. No. 299,449

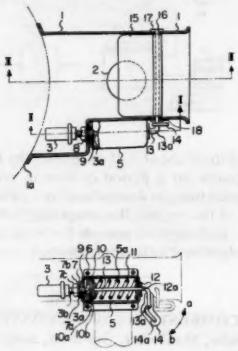
Claims priority, application Japan, Oct. 22, 1971, 46/84211; Oct. 30, 1971, 46/86503; July 22, 1972, 47/73706

Int. Cl. F02m *35/04*

U.S. Cl. 123—122 D **3 Claims**

An intake air temperature automatic adjusting device for internal combustion engines, in which a temperature feeler hav-

ing a heat-sensitive expanding compound sealed therein is provided in a cold air intake pipe and a push rod adapted to be operated by said feeler and having a crank-shaped arm formed at one end thereof is engaged at said arm with a cam having formed therein a crank-shaped slot composed of a first slot section and a second slot section and further a directional control valve operating incident to movement of said cam for regulating the amounts of air supplied from said cold air intake pipe and a hot air intake pipe connected thereto is provided in said cold air intake pipe, whereby when said push rod is operated by said feeler, said directional control valve is shifted between said cold air intake pipe and hot air intake pipe, with said arm sliding in the first slot section of the crank-shaped slot of the cam and, when said push rod is further operated in excess of its preset stroke, the amount of movement of said push rod is absorbed by said cam, with said arm sliding in the second section of said crank-shaped slot.



3,782,350

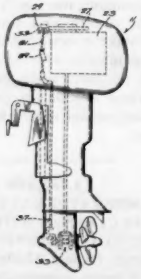
NEUTRAL START ONLY MECHANISM

Edward D. McBride, Waukegan, Ill., assignor to Outboard Marine Corporation, Waukegan, Ill.

Filed July 17, 1972, Ser. No. 272,552

Int. Cl. F02n *17/00*

U.S. Cl. 123—179 K **2 Claims**



Disclosed herein is an engine including a reversing clutch and a starter pinion, together with a clutch actuating member movable relative to a neutral position, means for causing axial movement of the starter pinion toward a starting gear engaging position in response to rotation of a drive member and including a spring and means connecting the spring to the starter pinion for releasably and frictionally restraining rotary movement of the starter pinion and for common movement of the spring with the starter pinion axially of the axis of starter pinion rotary movement, a blocking element pivotally movable relative to a position blocking movement of the spring end therefore of the starter pinion in the direction toward the starting gear engaging position, and means connecting the clutch actuating member to the blocking element for displacing the blocking element to the blocking position when the clutch actuating member is moved from the neutral position.

3,782,351

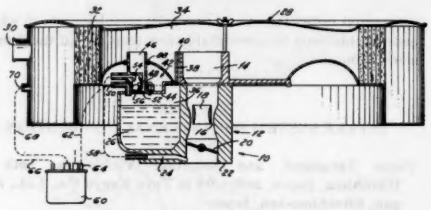
FUEL VAPOR-LOSS CONTROL VALVE AND SYSTEM

Jerry B. Rogerson, 627 N. Rosevere, Dearborn, Mich.

Division of Ser. No. 191,266, Oct. 21, 1971. This application Oct. 2, 1972, Ser. No. 294,047

Int. Cl. F02d *19/00*

U.S. Cl. 123—136 **3 Claims**



Described is a valve and a system employing such valve to control fuel vapor-loss from the bowl of a carburetor. In the fuel vapor-loss control system, the valve is positioned between the fuel bowl of the carburetor and the air cleaner attached to it. In the preferred form, the valve has a valve body including three passages. The first passage extends from the carburetor fuel bowl to a point within the air cleaner. The second passage is located in part within the first passage, but includes a second part extending to a point outside of the first passage. A third passage is connected with the carburetor fuel bowl and with a canister for the storage of fuel vapor. The second passage in the valve body has a movable member for preventing flow of vapor from the fuel bowl of the carburetor to the air cleaner when the movable member is in contact with a valve seat. Movement of the movable member is controlled by engine manifold vacuum attached to one end of the second passage in the valve body.

3,782,352

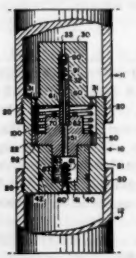
PRESSURE SENSITIVE FLUID INJECTOR AND POGO STICK UTILIZING SAME

Frederick J. Sparber, RD No. 1, Box 192A, Belen, N. Mex.

Filed July 26, 1971, Ser. No. 166,159

Int. Cl. F02m *49/00*

U.S. Cl. 123—139 AJ **4 Claims**



A fluid injector including a pressure sensitive piston through a hole in which is injected a predetermined quantity of fluid

into an adjacent area, when a predetermined pressure is presented onto a face of the piston. The piston includes therein a cavity to contain the fluid to be injected and a valve in the hole for constraining the fluid within the cavity until the predetermined pressure is presented. As the pressure in the adjacent area increases, the fluid supply to the cavity of the piston is restricted, and the movement of the piston after the predetermined pressure is reached forces the fluid through the valve into the adjacent area.

Also presented is a pogo stick incorporating a combustion engine, the fuel to which is fed by the fluid injector of the invention.

3,782,353

CAPACITIVE TYPE IGNITION ARRANGEMENT FOR INTERNAL COMBUSTION ENGINES

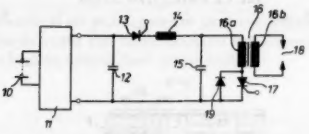
Heinz Kammerer, Nellingen, and Heinz Moller, Stuttgart, both of Germany, assignors to Robert Bosch GmbH, Stuttgart, Germany

Filed Sept. 30, 1971, Ser. No. 185,162

Claims priority, application Germany, Oct. 6, 1970, P 20 48 960.5

Int. Cl. F02p *1/00*

U.S. Cl. 123—148 E **9 Claims**



Energy from a storage capacitor is transferred to an ignition capacitor when a first switch is made conductive, and the spark is initiated by discharge from the ignition capacitor through the ignition transformer upon closing of a second switch. The current limiting element between the storage capacitor and the ignition capacitor is an inductance.

3,782,354

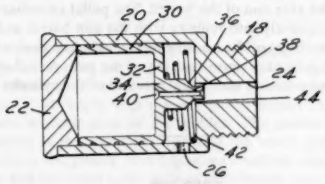
AUTOMATIC COMPRESSION RELIEF VALVE

Charles H. Tuckey, Cass City, Mich., assignor to Walbro Corporation, Cass City, Mich.

Filed May 5, 1972, Ser. No. 250,682

Int. Cl. F01l *13/08*; **F04b** *49/02*

U.S. Cl. 123—182 **4 Claims**



An automatic compression relief valve which opens an engine cylinder to atmosphere for starting and closes in response to cylinder pressure under normal operating conditions. The relief valve includes a hollow body having a screw-end to fasten into a cylinder wall, a valve passage and seat at the cylinder end of the valve body leading to a vent in the body, a cup-like piston positioned in the body with the open end facing away from the cylinder and valve seat, and a valve projection at the valve seat end of the cup having a perforation to the inside of the cup so that pressure in the cylinder will move the cup against a spring bias to close the valve seat from the vent during engine operation.

3,782,355

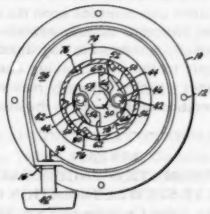
RECOIL STARTER

Lyle J. Hamman, Eaton Rapids, Mich., assignor to Eaton Stamping Company, Eaton Rapids, Mich.

Filed July 29, 1971, Ser. No. 167,216

Int. Cl. F16d *11/06*; **F02n** *1/00*; **F16d** *13/04*

U.S. Cl. 123—185 B **4 Claims**



A recoil starter construction for internal combustion engines particularly suitable for use with engines of the type used with snowmobiles and other recreational vehicles subject to heavy duty use. The starter employs a lightweight plastic rope pulley having a radially spaced shoulder within a rope receiving groove, and rope guide means defined within the groove insure the laying of the rope in the groove during recoiling in a predetermined manner which minimizes rope bind during cranking. The starter also utilizes a cam dog of a generally flat configuration having an outer periphery including dog-extending and dog-retaining surfaces, the cam dog positively retaining the engine clutch engaging dogs against operative contact with the flywheel components when the starter has recoiled and rewound the starter rope.

3,782,356

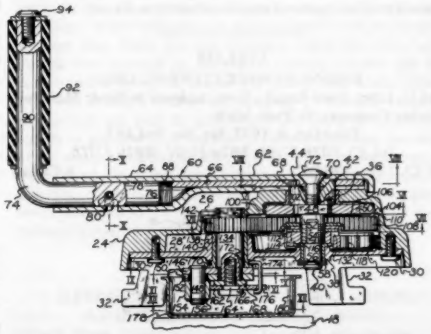
KICK STARTER

Lyle J. Hamman, Eaton Rapids, Mich., assignor to Eaton Stamping Company, Eaton Rapids, Mich.

Filed Feb. 28, 1972, Ser. No. 229,970

Int. Cl. F02n *3/04*

U.S. Cl. 123—185 C **8 Claims**



A kick starter for small internal combustion engines capable of being exteriorly attached to the engine flywheel housing in

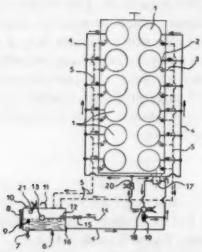
place of the usual recoil type rope starter. A pair of spaced parallel shafts are rotatably mounted at their end regions within a casing, one shaft being connected to a foot operated crank arm, and the other shaft supporting engine flywheel starter clutch mechanism. Meshing gears are mounted upon the shafts and one of the gears is connected to its associated shaft through a torque limiting connection permitting slippage to occur between the foot operated crank and flywheel clutch mechanism in the event of premature ignition or "backfire" during cranking. A recoil spring returns the crank arm to its original position after the cranking operation, and stop means insure consistent and uniform positioning of the crank arm to its original position at the end of the cranking stroke. The flywheel clutch mechanism includes a radially movable dog which engages a drive cup mounted upon the engine flywheel, and dog actuating structure radially extends the dog during cranking, and radially retracts the dog during return of the starter components to the non-cranking condition. A sheet metal crank defines a socket pivotally receiving a foot pedal and a pin limits rotation of the pedal in the socket.

3,782,357

INTERNAL-COMBUSTION-ENGINE VALVE-ROCKER AND VALVE-STEM LUBRICATION CIRCUIT

Karl Walter Kuhn, Saint-Germain-en-Laye, and Marcel Pierre Ernest Marie Corbin, L'Isle Adam, both of France, assignors to Societe d'Etudes de Machines Thermiques, Saint-Denis, France

Filed Mar. 3, 1972, Ser. No. 231,611
Claims priority, application France, Mar. 8, 1971, 7107906
Int. Cl. F16n *29/04*; F01m *1/10*
U.S. Cl. 123—196 S **2 Claims**



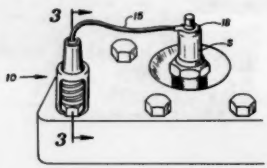
A valve-rocker and valve-stem lubrication circuit for an internal combustion engine provided with cooled valves and a general engine-lubricating circuit, wherein the improvement consists in that said valve-lubricating circuit is completely independent of said general engine-lubrication circuit.

3,782,358

ENGINE TEMPERATURE GUARD

John O. Lenz, Coon Rapids, Iowa, assignor to Havir Manufacturing Company, St. Paul, Mich.

Filed Oct. 4, 1972, Ser. No. 294,853
Int. Cl. F02b *77/00*; F02p *1/02*; H01h *37/76*
U.S. Cl. 123—198 DC **6 Claims**



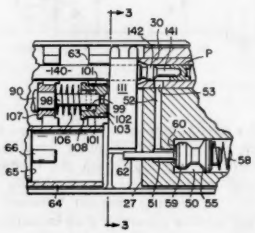
A device for slowing down or stopping of sparkplug fired internal combustion engines whenever the engine reaches a predetermined temperature to prevent damaging of the engine including means for mounting a heat sensing device upon a selected portion of the engine and providing therein a conductive member being held in a first position by a heat destructable member and shiftable from this position when the heat destructable member has been destroyed to a second conducting position and including a conductive wire extending from the area of contact of the conductive member in its second position to the spark plug such that when the heat destructable holding element is destroyed the circuitry will be completed to short the electrical energy from the distributor to the engine block and thereby bypass the spark plug. An inspection aperture is provided to permit inspection of the unit without total removal from the engine block.

3,782,359

REMOVABLE CLIP WITH ROTARY PROJECTILE CYLINDER FOR A GUN

Charles E. Kester, Hilton, and Thomas E. Hughes, Palmyra, both of N.Y., assignors to The Coleman Company, Inc., Wichita, Kans.

Division of Ser. No. 128,910, March 29, 1971, Pat. No. 3,741,189. This application Mar. 9, 1973, Ser. No. 339,897
Int. Cl. F41c *25/10, 25/08*
U.S. Cl. 124—48 **3 Claims**



The clip comprises a housing and a rotatably indexible cylinder in the housing having thereon spaced clutch teeth which releasably engage through a central opening in the back of the housing like teeth formed on an indexing shaft that is pivoted in the gun. A plurality of pellets are removably mounted in angularly spaced chambers in the cylinder. The housing is removably insertable into a gun rearwardly of the gun barrel to have a small opening in the front of the clip register with the rear end of the barrel. The pellet chambers are indexed successively into registry with the gun barrel and the opening in the front of the housing by the indexing shaft which is rotated step-by-step upon cocking of the gun. A leaf spring in the housing prevents accidental rotation of the cylinder.

3,782,360

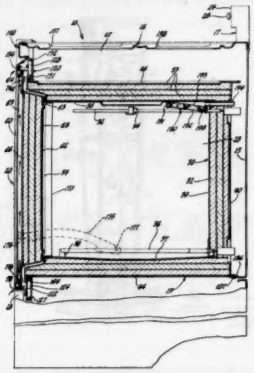
HEAT-CLEANING RANGE CONSTRUCTION

Byron L. Brucken, Dayton, Ohio, assignor to General Motors Corporation, Detroit, Mich.

Filed Nov. 20, 1972, Ser. No. 308,027
Int. Cl. F24c *15/16*
U.S. Cl. 126—19 R **3 Claims**

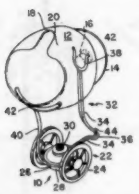
A venting structure for a domestic range having a heat-cleaning oven wherein maximum cooling room air flow maintains reduced range cabinet surface temperatures during a heat-cleaning cycle. An oven liner is cantilevered from the front wall of the range and separated therefrom by a stainless

steel throat member positioned around the oven liner access opening. Air channel means are provided to vent heated air



from a vertical air passageway in the oven door to a plenum chamber beneath the range cooktop for exhausting via the surface heating units or back panel vents.

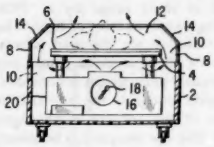
3,782,361
BRANDY WARMER & SERVER
Fred Hagen, 3351/2 S. Water St., Marine City, Mich.
Filed Apr. 23, 1973, Ser. No. 353,344
Int. Cl. F24c *3/08*
U.S. Cl. 126—43 **6 Claims**



A movable frame, including a heater support, which is connected to a stand for holding a brandy snifter above a heater. The stand holds both the stem and goblet portions of the snifter at an angle with respect to the heater for warming a greater surface area of the goblet. The snifter is rotatably mounted in the stand for warming the entire goblet and the brandy in the goblet. The frame may include either wheels or skids and the stand holds goblets of different sizes.

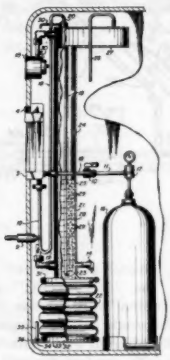
3,782,362
BABY INCUBATOR
Eugene T. Puzio, 1385 Nottingham Way, Trenton, N.J.
Filed June 1, 1971, Ser. No. 148,408
Int. Cl. A61g *11/00*
U.S. Cl. 128—1 B **13 Claims**

Baby incubators are provided with wall forming members projecting upward about the sides of a support for an infant and conditioned air is circulated over the inner surfaces of the walls in a manner to prevent loss of heat from the patient to the walls or ambient air. The construction in its preferred embodiments includes wall forming members movable to either



opened or closed positions whereby access to the patient is afforded while the preservation of a protective environment is assured.

3,782,363
PNEUMO-INFUFFLATOR APPARATUS
Gilbert L. Davis, 7620 N. 48th Ave., Glendale, Ariz.
Filed July 15, 1971, Ser. No. 162,908
Int. Cl. A61b *5/00*
U.S. Cl. 128—2 R **2 Claims**



Apparatus is disclosed for providing pressurized gas to a cavity within a living person or animal for the purpose of assisting a physician or surgeon in carrying out diagnostic or corrective procedures. Very close control over the maximum pressure introduced within the body cavity is achieved by utilizing a water column as a back pressure element in such a manner that, when the gas pressure within the body cavity equals that exerted by the water column, further gas flow results in the escape of excess gas through the water column. The unit includes means for carrying an integral supply of pressurized gas and for selectively switching to an external supply of gas as well as means for rapidly adjusting the height of the water column and the gas flow rate. The water column includes a bellows structure at its lower end, and the means for adjusting the height of the water column operates to raise or lower the bottom of the bellows. The height of the water column is read on a water manometer.

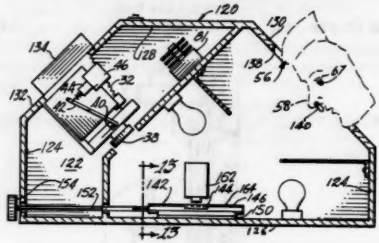
3,782,364
METHOD FOR DETECTING AND RECORDING ABNORMAL HUMAN EYE RESPONSES
John R. Watt, 2140 Peachtree Rd. Apt. 404, Atlanta, Ga.
Filed Dec. 20, 1971, Ser. No. 209,623
Int. Cl. A61h *5/00;* **A61b** *5/00*
U.S. Cl. 128—2 T **25 Claims**

This invention is believed especially useful for detecting and recording drug abuse and chemically or disease caused abnor-

malities in eye behavior. Its principal proposed method is to photographically record visible changes in the eyes caused by certain stimuli, including the intensity of ambient light.

The subject person is positioned so that his eyes are first photographed at short range by a "POLAROID"-type of camera in a regulated amount of light. Then the light conditions or other stimuli are changed in ways which normally stimulate known changes in the pupil sizes or direction of view, and a second photograph is recorded preferably on the same photo print alongside the previous image. At the same time the face of the subject is photographed for positive identification. The eye images can be photographed accurately enough to allow measuring the pupil diameters within acceptable limits of accuracy.

For further data, it may also be desirable to photograph more than two pictures of each pupil on the same print: one pair with a standard level of illumination or stimulation, the others with different amounts of illumination or different stimulations.



Apparatuswise, several embodiments of this system are possible. In one, the "POLAROID"-type camera can be mounted in one end of a "look-in" box, which has a face hole for the subject. This would have lights within to illuminate the subject's eyes with different and controlled amounts of illumination, starting with comfortable soft light and increasing greatly, all operated by a timing system which includes sequential timing switches electrically connected to the camera shutter and to the lights.

The camera or its view could be shifted in position slightly between successive photographs so as to put one image above, below or beside the other, or the subject's eyes could be induced to shift slightly from one side to the other between photographs, accomplishing the same result.

Instead of changing the light level as the stimulus, other embodiments of this system use other stimuli such as moving objects, verbal or pictorial stimuli, or psychological media. Either way, eyes which are drugged or are affected by certain nervous disabilities, photograph differently from normal ones.

3,782,365

DETECTOR FOR LOCATING VEINS IN LIVING BODIES

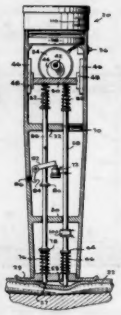
Sanford Pinna, 500 68th Ave. South, St. Petersburg, Fla.

. This application Mar. 13, 1973, Ser. No. 340,924

Int. Cl. A61b *5/00*

U.S. Cl. 128—2 R **7 Claims**

A casing is provided with an elongated sensor rod and a marking rod mounted for axial reciprocation by a motor driven cam through compression springs so that the sensor is moved outwardly of the casing by a pulsating force with the end of the sensor engaging a living body so that the compressive force on the sensor depends on the resistance of the body, a latch release lug is held in latched position by an electromagnet controlled through a piezo crystal in the sensor for releasing the latch when compressive force on the sensor goes below a given level to release a spring urged marking rod for outward movement to mark the surface of the body in response to lessened resistance to outward movement of the sensor and consequent compressive force on the sensor occasioned by a vein positioned beneath the sensor.



3,782,366

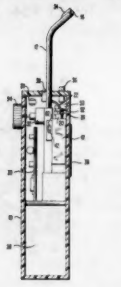
DENTAL PULP TESTER

Ronald W. Brown, 8340 S.W. 65th Ave., Miami, Fla.

Filed Mar. 16, 1972, Ser. No. 235,391

Int. Cl. A61b *10/00*

U.S. Cl. 128—2.1 R **5 Claims**



A hand-held dental pulp tester comprising in one integral unit means for selectively applying heat, cold, electrical shock and mechanical impact to the tip of the tester which is in contact with a patient's tooth.

3,782,367

"PACEMAKER" MONITORING TECHNIQUE AND SYSTEM

Howard Martin Hochberg, East Windsor, N.J., and Eugene King, Yardley, Pa., assignors to Hoffman-La Roche Inc., Nutley, N.J.

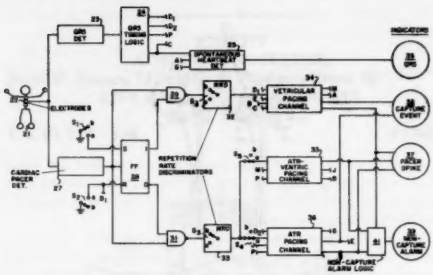
Filed Feb. 25, 1972, Ser. No. 229,495

Int. Cl. A61b *5/04*

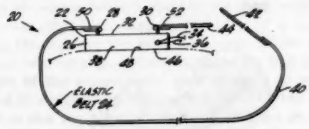
U.S. Cl. 128—2.06 A **23 Claims**

A monitoring system operates to indicate the effectiveness of cardiac pacer operation in a cardiac pacer carrying patient. A predetermined time interval from the onset of a pacer spike

defines minimum and maximum specific times as criteria for establishing digital techniques to ascertain a capture event or whether the patient's QRS is driven by the pacer spike. Additional digital circuitry indicates when a non-capture event has occurred as the cardiac pacer output has failed. By selective switching which includes proper routing of the atrial and ventricular spikes, the system is adapted to monitor atrial, ventricular and atrial-ventricular sequential pacing, whether in the fixed or demand modes. With atrial-ventricular sequential pacing the predetermined interval from onset of the atrial spike defines minimum and maximum times to ascertain if atrial-ventricular capture has occurred.



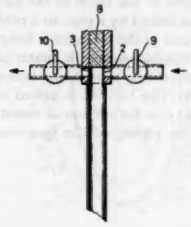
3,782,368
TRANSDUCER CONSTRUCTION AND SYSTEM FOR MEASURING RESPIRATION
Robert C. Reibold, Garden Grove, Calif., assignor to McDonnell Douglas Corporation, Santa Monica, Calif.
Filed May 24, 1971, Ser. No. 146,156
Int. Cl. A61b *5/08*
U.S. Cl. 128—2.08 **7 Claims**



A moment-actuated transducer unit mounted to an elastic belt having Velcro-type fastener means for attaching the belt and transducer unit snugly around the chest or abdomen region of a subject's body provides a highly sensitive and easily installed respiration transducer assembly. The output of the transducer unit can be connected directly to a high input impedance recorder or to a signal conditioning circuit which includes an unfiltered output and a high frequency filtered output wherein a regular high input impedance recorder can be selectively connected to either of such outputs.

3,782,369
ENDOSCOPE WITH IRRIGATION MEANS
Karl Storz, Hermannstrasse 14, Tuttlingen, Germany
Filed Sept. 2, 1971, Ser. No. 177,349
Claims priority, application Germany, Apr. 3, 1971, 7112995
Int. Cl. A61b *1/12, 1/30*
U.S. Cl. 128—7 **3 Claims**

An endoscope comprising a shaft having a head in which is mounted an eye-piece for direct viewing. Inlet and outlet means for passing a fluid irrigation media through the shaft is provided beneath the head. A transparent body extends from



the eye-piece to the inlet-outlet means and serves to prevent formation of air bubbles or the entrapment of particles in the head.

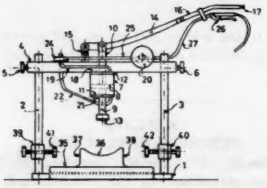
3,782,370
SURGICAL RETRACTOR
Bernard McDonald, 18212 Pacific Coast Hwy., Malibu, Calif.
Continuation-in-part of Ser. No. 230,299, March 1, 1972. This application July 12, 1972, Ser. No. 271,037
Int. Cl. A61b *17/02*
U.S. Cl. 128—20 **12 Claims**

This surgical retractor has a pair of opposed slat-like sides interconnected by an elastic V-shaped end piece so that the side slats are elastically bowed in arcuate paths with the concave sides of the slats facing each other. Each of the slats has cooperating ratchet and pawl arrangements to permit substantially free lengthwise extension and restricted lengthwise retraction for enlarging the size of the retractor. An extensible inflatable tube extends around the retractor and is intermittently connected thereto for extending the retractor in response to increasing fluid pressure in the tube.

3,782,371
RESUSCITATION APPARATUS FOR SIMULTANEOUS CARDIAC MASSAGE AND ARTIFICIAL RESPIRATION
Rene Derouineau, Moulin de Pelissey, Gradignan, France
Filed May 26, 1972, Ser. No. 257,076
Claims priority, application France, June 7, 1971, 71.21400
Int. Cl. A61h *31/00*
U.S. Cl. 128—28 **10 Claims**

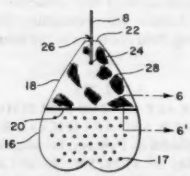
A light and self-contained device which allows resuscitation of an accident victim by a single person, even if inexperienced in resuscitation techniques. The apparatus has a base on which are mounted two vertical columns which are sufficiently spaced apart to admit the chest of a prone person. On the upper portions of these columns slides a cross-piece which can be clamped on the columns at an adjustable distance from the

base. A vertical cylinder is mounted below the centre of the crosspiece and in it slides a piston provided with two piston rods. The upper rod is linked to a second order lever with which the piston can be reciprocated vertically. The lower piston rod is provided at its lower end with a rubber-based plunger for application to the chest of the patient. The upper end of the cylinder is linked by a pipe to a rubber air reservoir balloon. The lower end of the cylinder is linked by a pipe to a bellows made of a flexible, synthetic material. The air reservoir balloon is connected by a pipe to a face-mask for pumping air to the patient. The bellows is linked to a pistol with a manually controlled valve for suction of vomit from the mouth of the patient. In the piping of the face-mask is situated a



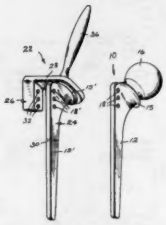
safety valve set for a determined excessive air pressure, and on the pipe circuit for suction of vomit is placed a vomit reservoir. By means of T-pieces, the pipes connecting the cylinder to the balloon and the bellows are connected to a three-way valve on the crosspiece, allowing the connection to atmosphere of one or the other of these elements. A movable panel between the columns supports the head and chest of the patient and movement of the panel allows the plunger to be situated precisely at the base of the sternum of the patient. The handle of the lever is adjustable and dynamometric, so that the force applied to the chest by the plunger can be adjusted to the size of the rib cage and the age of the patient, to avoid possible fracture of the ribs.

3,782,372
CAMOUFLAGED DEVICE FOR TEMPORARY FACE LIFTING
Jacqueline H. Carlton, Rt. 3, Box 359, Ft. Pierce, Fla.
Filed Apr. 20, 1972, Ser. No. 245,865
Int. Cl. A61f *5/08*
U.S. Cl. 128—76 B **4 Claims**



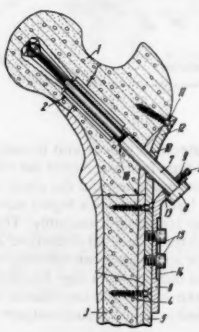
Tabs are applied adhesively to each side of the face and pulled upward by attached cords passed through the hair atop the head. The tabs are heart-shaped and divided into two sections— a skin-colored adhesive section and a reinforced section covered with hair-colored cloth and pierced to receive the cord. A protective paper cover is provided for use over the adhesive section before use.

3,782,373
DRILL JIG FOR A FEMORAL PROSTHESIS
Walter J. Smythe, Mentone, Ind., assigaor to Orthopedic Equipment Company, Inc., Bourbon, Ind.
Filed May 22, 1972, Ser. No. 255,817
Int. Cl. A61f *5/04*
U.S. Cl. 128—92 EB **2 Claims**



A jig for forming one or more holes in the femur for the purpose of accommodating securement means utilized to anchor a prostheses forming a part of a hip joint to the femur. The jig includes an insert which is shaped like the shank of the femoral prosthesis and which is fitted into and seated in the femur in substantially the same manner as the prosthesis. This insert of the jig contains one or more guide bores for a work tool which forms one or more holes in the femoral bone for the purpose of accommodating the securement means utilized to anchor the prosthesis to the femur.

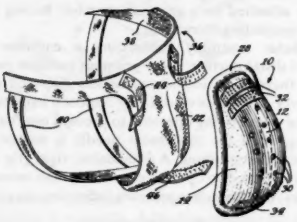
3,782,374
SURGICAL DEVICE
Artur Fischer, Altheimer Strasse 219, Tumlingen, Germany
Filed Aug. 16, 1972, Ser. No. 281,057
Claims priority, application Germany, Aug. 17, 1971, 2141111
Int. Cl. A61f *5/04*
U.S. Cl. 128—92 BB **9 Claims**



A surgical device for joining broken bone segments includes a rail member configurated to abut against one segment of the bone and has an aperture therein. A holder member has an aperture therein and is configurated to slide along the rail member and has a longitudinal slot through which fixing screws can pass and engage with the rail member for fixing the members against relative movement with respect to one another. An elongated connecting means passes through the apertures of the rail member and of the holder member. Each

of the apertures define a pivot point in which the elongated member is pivotally mounted and forms an angle with the bone which is a function of the relative positions of the two members. One end of the elongated member is anchored to the holder member and another end is fixed to another segment of the bone, the elongated member being arranged to pull the last-mentioned segment towards said holder member while abutting against said rail member.

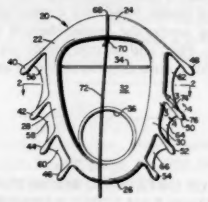
3,782,375
ATHLETIC PROTECTOR
Davis W. Donars, 7520 Main St., Downers Grove, Ill.
Filed Apr. 7, 1972, Ser. No. 242,085
Int. Cl. A41b *9/12*
U.S. Cl. 128—158 **5 Claims**



An athletic protector comprising a substantially rigid cup or shell integrally formed with a generally U-shaped configuration in transverse cross-section wherein the front curvilinear wall merges with opposite spaced side walls, which side walls are generally parallel to each other along the length of the shell, and wherein the distance between the spaced side walls forming the width of the shell is substantially uniform and equal throughout the length of the shell, and in which the side edges have a slight curvature extending from the top downwardly, with the bottom transverse edge extending slightly above the bottom point of the shell, with said bottom transverse edge extending rearwardly of a vertical plane passing through the top transverse edge of the shell, so that said rear bottom edge extends between the legs and under the scrotum of the wearer, said shell adapted to be detachably secured to a jock-strap support but spaced from the occupied pouch so that any blow or impact against the shell will not be transmitted to the occupied pouch or to the organs therein supported. The shape of the shell is such that it may be comfortably worn without interfering with the movement of the legs.

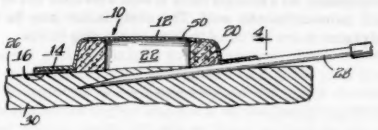
3,782,376
INTRAUTERINE CONTRACEPTIVE DEVICE
Irwin S. Lerner, Greenwich, Conn., assignor to A. H. Robins Company, Incorporated, Richmond, Va.
Filed June 23, 1971, Ser. No. 155,769
Int. Cl. A61f *5/46*
U.S. Cl. 128—130 **115 Claims**

An intrauterine contraceptive device made from plastic and having a perimetral ring with or without a central membrane and including short retrograde spurs having bulbous contour located on each of the outer side portions of the perimetral ring. The spurs preferrably have a retrograde inclination and are of decreasing length from a nose portion of the perimetral ring toward the tail portion, the nose portion being slightly wider than the tail portion providing the IUD with an inverted pear shaped outline when viewed in plan. A marker and extraction string or line is preferrably secured at the nose portion but can be secured to the tail portion. Between spurs, thin webs may be utilized to provide increased IUD surface area. The webs may or may not be secured to the spurs and may terminate between or beyond the spurs. Internal of the perimetral ring is preferrably a membrane having openings at



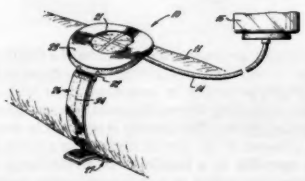
least adjacent the nose and the tail. The membrane may be secured at both sides or it may be secured by a plurality of intermediate narrow membrane portions spaced around the interior of the perimetral portion.

3,782,377
STERILE PLASTIC SHIELD
Frank J. Rychlik, Chicago, Ill., assignor to Illinois Tool Works Inc., Chicago, Ill.
Filed Sept. 7, 1971, Ser. No. 177,951
Int. Cl. A61f *13/00*
U.S. Cl. 128—132 **2 Claims**



The present invention relates generally to improvements in protective shields for application to a body surface area in which an infusion needle has been inserted. An embodiment of the invention disclosed herein includes a relatively rigid transparent cup-shaped cover or shield member and a laterally flexible circumferential flange radiating from the open margin of the cover member. Surrounding the interior wall of the cover member is a disinfectant impregnated wick-like member. The flange is adapted for adhesive attachment to the above-mentioned surface area.

3,782,378
SHIELD FOR INTRAVENOUS FEEDING APPARATUS
Sarah J. Page, 1218 Concord Ave., Fullerton, Calif.
Filed Oct. 12, 1972, Ser. No. 296,919
Int. Cl. A61f *13/00*
U.S. Cl. 128—133 **8 Claims**



A shield for surrounding and protecting an infusion needle during an intravenous feeding operation and for holding the

excess fluid supply tubing while permitting visual observation of the intravenous fluid. A soft, resilient, non-absorbent annulus surrounds the infusion needle and has a wire, stiffening ring in contact with the top surface thereof. A transparent, flexible window covers the opening in the center of the annulus and is sealed to the top surface thereof by an annular cover. A pair of elastic bands are connected to the stiffening ring and extend across the center thereof to hold the excess tubing in place. First and second bands are connected to the stiffening ring for connecting the shield to an arm or leg.

3,782,379

METHOD OF OBTAINING ROOM TEMPERATURE VULCANIZABLE SILICONE RUBBER EAR PLUGS

Warren R. Lampe, Ballston Lake, N.Y., assignor to General Electric Company, Waterford, N.Y.

Division of Ser. No. 76,265, Sept. 28, 1970, Pat. No. 3,696,090. This application Jan. 24, 1972, Ser. No. 220,532

Int. Cl. A61f *11/02*; **B29c** *5/00*

U.S. Cl. 264—222 **1 Claim**

A room temperature vulcanizable silicone rubber composition comprising, (a) a high molecular weight liquid diorganopolysiloxane having terminal hydroxy groups bonded to the silicon atom and a viscosity of 3×10^6 to 2×10^8 centipoise at 25°C, (b) 0–60 percent by weight of said high molecular weight organopolysiloxane of a low molecular weight liquid organopolysiloxane having terminal hydroxy groups bonded to the silicon atoms and a viscosity of 100 to 3.0×10^5 centipoise at 25°C. There is also present a filler and an alkyl silicate which acts as the cross-linking agent during curing of the composition. As a catalyst there is used a metallic salt of an organic monocarboxylic acid. The composition may be mixed and placed in the ear canal to form an ear plug in situ.

3,782,380

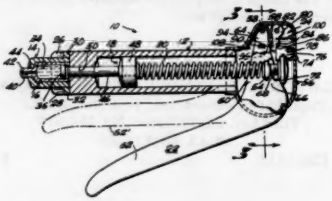
MEDICAMENT INJECTING DEVICE

Harry Van Der Gaast, 289 N. Hibiscus Dr., Miami Beach, Fla.

Filed Jan. 4, 1973, Ser. No. 320,994

Int. Cl. A61m *11/08*

U.S. Cl. 128—173 H **10 Claims**



A device for pressure administration of a fluent medicament in which a cartridge, containing the medicament, includes a small discharge orifice in communication with an enlarged chamber containing the medicament, encapsulated therein by a dispensing piston. The capsule is removably mounted in one end of a barrel of the device containing a force transmitting means, operable by a handle lever, to discharge the medicament from the orifice at a skin-penetrating pressure. Means are provided for automatically resetting the device for subsequent use with another cartridge when hand applied pressure is released from the handle.

3,782,381

METHOD FOR PREVENTING SKIVING OF A CATHETER

Alon P. Winnie, Wilmette, Ill., assignor to Johnson & Johnson, New Brunswick, N.J.

Filed Nov. 26, 1971, Ser. No. 202,256

Int. Cl. A61b *17/34*; **A61m** *25/00*

U.S. Cl. 128—214.4 **2 Claims**

A catheter for the administration of fluids into the body which includes a length of precurved, flexible tubing permanently attached to a gripping member having a winglike structure projecting therefrom.

A catheter assembly comprising a catheter having a precurved distal portion and a gripping member permanently attached thereto, an introducer needle disposed partially in the catheter and a sleeve slidably disposed over the catheter tubing, the sleeve being operable to prevent internal skiving of the tubing when the introducer needle is moved forwardly within the catheter tubing. A detachable, rigid grip is provided which may be used to operatively connect the introducer needle with a syringe or other pressure indicating accessory.

3,782,382

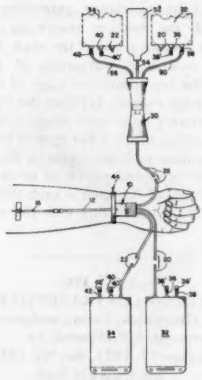
MEANS FOR BLOOD ADMINISTRATION AND THE LIKE

Henry Naftulin, and Leon Kirschner, both of Skokie, Ill., assignors to K-N Enterprises, Inc., Skokie, Ill.

Filed Feb. 3, 1972, Ser. No. 223,236

Int. Cl. A61m *5/00*

U.S. Cl. 128—214 R **8 Claims**



Fluid or blood administration equipment comprising, a plastic manifold, a plurality of flexible conduits connected at one end to said manifold and at their opposite ends each respectively connected to a bag for receiving blood, another flexible conduit connected to said manifold at one end with the opposite end of said flexible conduit adapted to be connected to a blood flow tube, another flexible conduit adapted to be connected at one end to said manifold with the opposite end thereof connected to an intravenous needle, with said pair of conduits leading to said blood bags having at their inner ends within said manifold a removable valve and with said manifold having a filter at the inner end of the conduit from

the needle, and a band secured to said manifold whereby said band is strapped around the wrist or arm of the patient to prevent dislodgement of the needle if there should be any pull on the equipment.

3,782,383

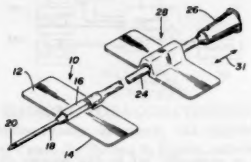
WINGED INFUSION HOLDING DEVICE WITH THERMOPLASTIC ELASTOMERIC BODY

Thomas C. Thompson; John L. Center, both of Dallas, Tex., and Paul M. Stocton, Clarendon Hills, Ill., assignors to Vicra Sterile, Inc., Dallas, Tex.

Continuation of Ser. No. 184,555, Sept. 28, 1971, abandoned. This application Mar. 6, 1973, Ser. No. 338,424

Int. Cl. A61m *5/00, 5/32*

U.S. Cl. 128—214 **14 Claims**



An intravenous infusion device includes a first wing member attached to a needle. A flexible conduit for supplying fluid to the needle is connected thereto via an intermediate sleeve of the same material as the conduit. A tiedown wing is removably attached to and movable along the conduit. Both the wing portion attached to the needle and the movable tiedown wing are composed of a synthetic thermoplastic eleastomer, preferably a block copolymer of styrene and butadiene.

3,782,384

SURGICAL SUCTION JAR

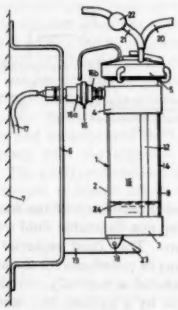
Claus Jurgen Timmermans, Schiphorsterweg 15, De Wijk, Netherlands

Filed Feb. 16, 1971, Ser. No. 115,420

Claims priority, application Netherlands, Feb. 20, 1970, 7002440

Int. Cl. A61m *1/00*

U.S. Cl. 128—277 **7 Claims**



A surgical suction jar is provided with a disposable flexible bag having two nipples at the top passed in air-tight fashion through the cover of the jar. One nipple has an extension to the bottom of the bag into a layer of antiseptic liquid acting as a water seal and can be connected to a conduit to be attached to a catheter. The other nipple is connected to a source of vacuum for the application of vacuum to the interior of the bag. The bag is maintained in relatively inflated condition by means of vacuum applied to the interior of the jar outside the bag, for which purpose the jar has a third passage for connection to the source of vacuum. In a preferred embodiment the interior of the bag and the interior of the jar outside the bag are selectively connected to the source of vacuum and the atmosphere through a three-way valve, and a pressure reducing valve controls the vacuum applied to the interior of the bag.

3,782,385

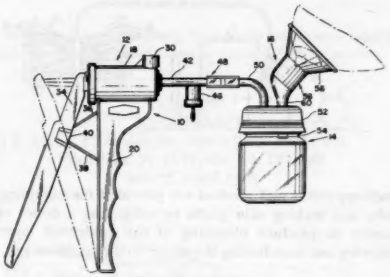
BREAST PUMP

Patrick V. Loyd, 6117 Parkway Dr., West Laurel, Md.

Filed Oct. 24, 1972, Ser. No. 300,394

Int. Cl. A61m *1/06*

U.S. Cl. 128—281 **5 Claims**



A breast pump utilizing a breast receiving element in the shape of a truncated cone in which the base of the cone is enlarged in order to avoid constriction of the nipple disposed therein and which further employs a suction pump capable of exerting various levels of vacuum force as required by the user.

3,782,386

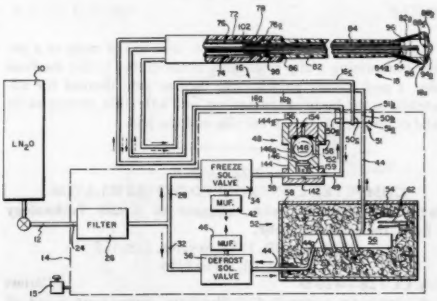
CRYOSURGICAL APPARATUS

J. P. Barger, Winchester; William H. Crandell, Westboro, both of Mass., and Thomas W. Gardner, South Nashua, N.H., assignors to Dynatech Corporation, Burlington, Mass.

Filed May 8, 1972, Ser. No. 251,433

Int. Cl. A61b *17/36*

U.S. Cl. 128—303.1 **18 Claims**



Cryosurgical apparatus feeds liquid refrigerant to the hollow tip of a cryosurgical probe through a first conduit to freeze

the tip, the refrigerant exhausting from the tip through a second conduit. To defrost the tip, refrigerant in the second conduit is heated and then back-flushed through the tip so that it exhausts therefrom through the first conduit. To maintain proper fluid flow through the probe during the defrost mode of operation, the probe contains a third conduit which bleeds fluid from the tip during both modes of operation.

3,782,387

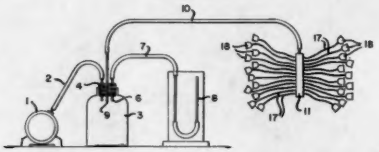
APPARATUS AND METHODS FOR OBTAINING AND MAKING SKIN GRAFTS

Rafael Falabella, Calle 46 Norte No. 5 AN-60, Cali, Colombia

Filed Feb. 29, 1972, Ser. No. 230,336

Int. Cl. A61b *17/32*

U.S. Cl. 128—305.5 **7 Claims**



An apparatus and method are provided for obtaining skin grafts and making skin grafts by subjecting a donor site to vacuum to produce blistering of the epidermal layer and removing and transferring the blister to the recipient site.

3,782,388

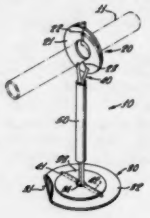
MEDICAL TUBE HOLDER

Sarah J. Page, 1218 Concord Ave., Fullerton, Calif.

Filed June 6, 1972, Ser. No. 260,115

Int. Cl. A61m *25/02*

U.S. Cl. 128—348 **8 Claims**



An article for attaching a medical tube to the body of a patient comprising a clip releasably connectable to the medical tube, a pad having an adhesive on one side thereof for adherence to the body of the patient, and a flexible, stretchable band connected between the clip and the pad.

3,782,389

COMPUTER CONTROLLED DEFIBRILLATOR

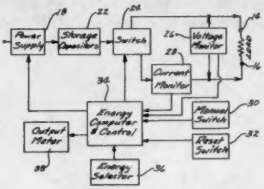
David Bell, Omaha, Nebr., assignor to Health Technology Labs, Inc., Omaha, Nebr.

Filed Jan. 20, 1972, Ser. No. 219,455

Int. Cl. A61n *1/36*

U.S. Cl. 128—419 D **4 Claims**

A computer controlled defibrillator comprising a set of electrodes which are engageable with a patient and which are connected to a source of electrical energy by a circuit means. The circuit means comprises storage capacitors, energy selector, computer, manual and reset switches, voltage monitor, current monitor, and output meter. The computer responds to certain external inputs, automatic and manual, and controls the output delivered to the patient. The energy selector permits the selection of the energy which is desired to be delivered to the patient. The sequence is started by closing the manual reset switch which zeroes the output meter and activates the power supply (electric energy) at a voltage which is dependent on the energy selector. The energy drived from the power supply is stored in the storage capacitors. The energy



selector, which is manually set to the energy desired, also feeds an input to the computer. When the manual switch is activated, the computer causes the stored energy source to be connected to the patient through the electrodes. The current monitor and voltage monitor feed instantaneous signals to the computer which computes the energy as a continuous integration process. When the computer energy equals the selected energy, the computer causes the energy source to be disconnected from the patient. The total energy delivered to the patient is indicated as a steady reading on the output meter.

3,782,390

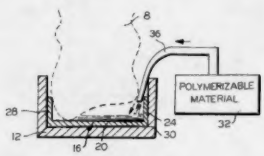
PEDICURE PROSTHESIS FOR THE METATARSAL ARCH OF THE FOOT

Amos N. Johnson, P.O. Box 158, Garland, N.C.

Filed July 23, 1971, Ser. No. 165,610

Int. Cl. A41f *5/14*

U.S. Cl. 128—595 **14 Claims**



A support for the metatarsal arch of the foot is formed by injection of a self-curing non-foamable fluid material into the arch support enclosure. This fluid material automatically cures into a rigid support or prosthesis for the arch of the foot. This polymerizable material is normally contained in either a insert under the foot or by a balloon like material, in either case the polymerizable material is pumped or injected into the resulting enclosure. The same method can be used to form in situ prosthesis casts for any part of the body, i.e., to form splints, braces, etc., contured directly to the portion of the human body for which it is designed to lend support. The self-curing material is preferably a cross-linkable prepolymerized material which includes an initiator, and the self-curing is achieved by the application of mild temperatures, e.g., 120° F.

3,782,391
β-METHYLVALERIC ACID ALKYL ESTERS AS TOBACCO FLAVORANTS

Richard E. Means; Andrew G. Kallianos, and Kinwood P. Tenney, all of Durham, N.C., assignors to Liggett & Meyers Incorporation, New York, N.Y.

Filed Mar. 24, 1971, Ser. No. 127,792
Int. Cl. A24b *15/04*
U.S. Cl. 131—17 R **5 Claims**

An article of manufacture comprising tobacco and a small but effective amount of a flavoring agent selected from the group consisting essentially of C_8–C_{10} alkyl esters and β-phenethyl ester of β-methylvaleric acid. The esters have such volatility that the greater part of the ester is released into the smoke stream, as said ester without decomposition during smoking.

3,782,392
SMOKING TOBACCO COMPOSITION

Matthew Sallee Monte, deceased, 181 Highland Ave., late of Stratford, Conn. (by Teresa B. Monte, administratrix)

Filed May 13, 1971, Ser. No. 143,193
Int. Cl. A24b *03/14, 15/00*
U.S. Cl. 131—17 **2 Claims**

This invention is for a new smoking composition having improved burning characteristics and comprises tobacco, an ammonium polyphosphate of high molecular weight and a natural or synthetic gum binder. The average molecular weight of the polyphosphate is between about 20,000 and 1,500,000 and the tobacco constitutes about 60–95 percent of the composition.

3,782,393
METHOD OF MAKING A CIGARETTE OF REDUCED BIOLOGICAL DAMAGE CAPABILITY

Irving Michelson, New Rochelle, N.Y., assignor to American Safety Equipment Corporation, New York, N.Y.

Filed Aug. 2, 1972, Ser. No. 277,335
Int. Cl. A24b *15/02*; **A24d** *1/02*
U.S. Cl. 131—9 **7 Claims**

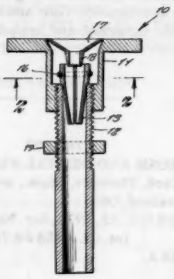
This invention relates to a method for making a cigarette which has the same smoking properties as an ordinary cigarette but reduces components contained in the smoke of such a cigarette which cause cancer on the skin of mice. The method includes adding to the cigarette paper calcium sulfamate in an amount of from 0.1% to 1.0%, by weight, based on the combined weight of the tobacco and cigarette paper. Ammonia is added to the tobacco in an amount of from 0.015% to 0.15%, by weight, based on the combined weight of the cigarette paper and tobacco and the tobacco containing ammonia is wrapped with the cigarette paper containing the sulfamate salt. The preferred amount of calcium sulfamate in the paper, by weight, is from 0.2% to 0.8% and the preferred amount of ammonia in the tobacco is from 0.03% to 0.12%, by weight.

3,782,394
CIGARETTE SNUFFING DEVICE FOR VEHICLES

Milton Foote, 831 S. Water St., Silverton, Oreg.

Filed May 1, 1972, Ser. No. 249,188
Int. Cl. A24f *13/18*
U.S. Cl. 131—256 **1 Claim**

A device for installation in automotive vehicles for safely snuffing out cigarettes. The device primarily includes a base fitting in which is carried an expandable split tube which is



tapered at its lower extremity in order to snuff out a cigarette completely, prior to the placing or urging it into an ashtray.

3,782,395
HAIR TEASER

Toby R. Sarna, 12 Avalon Dr., North Little Rock, Ark.

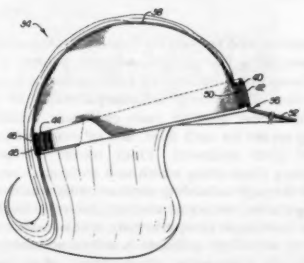
Filed Sept. 29, 1971, Ser. No. 184,680
Int. Cl. A45d *2/00*
U.S. Cl. 132—9 **6 Claims**

A hair teasing device has a handle portion housing a source of power which is connected to a movable hair teasing implement extending out of the forward portion of the handle. The source of power, preferably electric, is connected to an eccentric in driving association with the shank of the implement to move same back and forth about a pivot and rock a hair teasing member.

3,782,396
DETACHABLE AND INTERCHANGEABLE COMBINATION WIG AND HAT

Barbara L. Tomlinson, 812 S. Burnside Ave., Los Angeles, Calif.

Filed Sept. 10, 1971, Ser. No. 179,361
Int. Cl. A41g *3/00*
U.S. Cl. 132—53 **5 Claims**



A combination wig and hat wherein either the wig or the hat may be detached, one from the other, and a different wig or

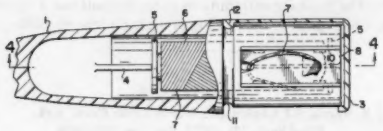
hat substituted, as the case may be, easily and rapidly. The invention is also adapted for a combination wig and cap, which is equally detachable and interchangeable, the one from the other, and for a combination visor and wig, which also can be easily and rapidly detached and interchanged, the one from the other.

3,782,397

TOOTHBRUSH AND DENTAL-FLOSS DISPENSER

Robert C. McCord, Florence, Mass., assignor to Vistron Corporation, Cleveland, Ohio

Filed Oct. 13, 1972, Ser. No. 297,210
Int. Cl. A45d *44/18*
U.S. Cl. 132—84 A **1 Claim**



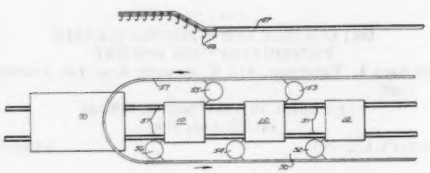
A toothbrush is described which is so constructed as to contain a novel dental-floss dispenser in the handle thereof.

3,782,398

APPARATUS FOR TRANSPORTING, UNLOADING AND PROCESSING LIVE POULTRY

James B. Powell, 8 Bon Haven; Beverly G. Yeiser, Robin Rd., and Joseph R. Lightner, Rt. 4, all of Winchester, Ky.

Filed May 22, 1972, Ser. No. 255,842
Int. Cl. B08b *3/00*
U.S. Cl. 134—133 **7 Claims**



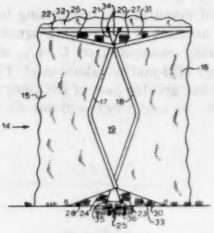
Apparatus and method for loading, transporting, unloading and processing live poultry, wherein poultry is loaded into foraminous metal enclosures, each enclosure having a plurality of tiers of superimposed compartments of equal size, a slidable access door to each enclosure, readily releasable locking means for each door, and rollers mounted on the bottom of each enclosure. Track means are provided at a processing plant along which said enclosures are aligned and moved through unloading stations, with means at a final unloading station to elevate each enclosure to facilitate unloading the lowermost compartments, and a washer-sterilizer into which an unloaded enclosure is moved and subjected to high-velocity jets of hot water, steam, detergent, germicide and the like to clean & sterilize all surfaces. The enclosures are placed in a truck trailer when loaded with poultry for transportation to the processing plant and are returned in the same manner after unloading and cleaning.

3,782,399

SELF CLOSING TENT DOOR

Freddy L. Milner, 904 Flewelling Ave., Ocoee, Fla.

Filed Mar. 6, 1972, Ser. No. 231,929
Int. Cl. A45f *1/08*
U.S. Cl. 135—14 D **2 Claims**



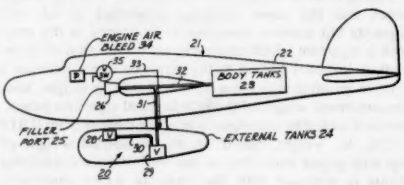
A tent door apparatus is provided which is self closing and has a pair of flaps which overlap and each flap is suspended from either end with an elastic material so that the flaps can be pulled apart for entry into the tent and will automatically close when the flaps are released. The suspension elastic cords are attached at the top to the frame of the tent and at the bottom to a stake driven in the ground, and are separated to pull the flaps into overlap.

3,782,400

VALVING SYSTEM FOR SUPPLYING FUEL TO TANKS AND TRANSFERRING FUEL BETWEEN TANKS

Artson P. Hardison, and E. Ellsworth Hieber, both of Glendale, Calif., assignors to Xar Industries Incorporated, City of Industry, Calif.

Filed Mar. 17, 1972, Ser. No. 235,613
Int. Cl. F16k *31/34*
U.S. Cl. 137—39 **10 Claims**



A flow control system to admit fuel to an aircraft fuel tank and to provide for fuel transfer between that tank and another tank. The system includes a pilot valve which is sensitive to fuel level at an upper elevation of the tank, and a flow valve disposed at a lower elevation of the tank. A fuel conduit connects the flow valve to a source of supply and to other tanks to which fuel is to be transferred, and a pilot line interconnects the pilot valve and the flow valve. The flow valve is a differential pressure type valve, and a flow signal for selecting its flow condition is supplied by the pilot valve. Means is provided to change the condition of the pilot valve for shutoff and for checkout purposes. The flow valve may also include shutoff means responsive to an empty tank and to negative *g*-forces.

3,782,401

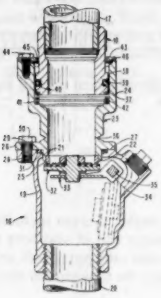
SHUT-OFF VALVE ASSEMBLY

Glenn E. Moore, and Robert C. Carl, both of Cincinnati, Ohio, assignors to Dover Corporation, Cincinnati, Ohio

Division of Ser. No. 55,436, July 16, 1970, abandoned. This application July 20, 1972, Ser. No. 273,394

Int. Cl. F16k *17/36*; F16l *21/02*

U.S. Cl. 137—68 10 Claims



A shut-off assembly has a tubular member supported thereby for connection to a fixed conduit of a pump pedestal so that the tubular member may move with respect to the shut-off valve assembly both axially and pivotally relative to its axis.

3,782,402

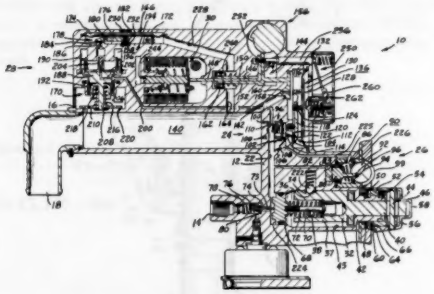
SERVO CONTROLLED OXYGEN REGULATOR

Robert L. Cramer, and John W. Henneman, both of Davenport, Iowa, assignors to The Bendix Corporation, South Bend, Ind.

Filed Oct. 24, 1972, Ser. No. 300,073

Int. Cl. A62b *9/00*

U.S. Cl. 137—81 11 Claims



An oxygen regulator wherein oxygen under pressure passes into a mixing chamber through a first inlet port and a first valve, controlled by a first pressure differential, and ambient air passes into the mixing chamber through a second inlet port and a second valve, controlled by a second pressure differential, to provide breathable fluid capable of maintaining physiological well being in a recipient. The first and second pressure differentials are created by the pressure in the mixing chamber and ambient air pressure. A proportional valve controlled by an aneroid, modifies the effect of the first and second pressure differentials causing the first and second valve to correspondingly open and supply the mixing chamber with correctly ratioed oxygen and ambient air.

3,782,403

CIRCUIT FOR PNEUMATIC CONTROLLERS

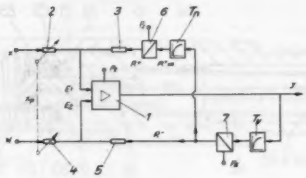
Horst Bader, Stuttgart-Fasanenhof, Germany, assignor to J. C. Eckardt AG., Stuttgart, Germany

Filed Aug. 13, 1971, Ser. No. 171,635

Claims priority, application Germany, Aug. 13, 1970, P 20 40 169.8

Int. Cl. G05d *16/00*

U.S. Cl. 137—86 20 Claims



A circuit for pneumatic PID controllers including a differential pressure amplifier having positive and negative feedback paths each including a timing element and a pressure divider wherein a buffer amplifier is connected between the timing element and the control point pressure divider and/or between the timing element and the setpoint pressure divider for energy decoupling.

3,782,404

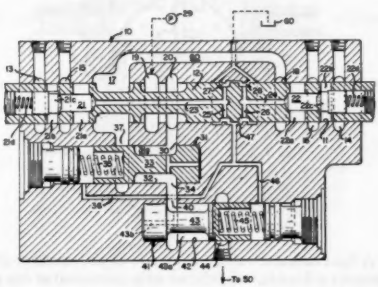
ADJUSTABLE, METERED, DIRECTIONAL FLOW CONTROL ARRANGEMENTS

Robert F. Hodgson, Canfield, Ohio, assignor to Commercial Shearing Inc., Youngstown, Ohio

Filed June 14, 1972, Ser. No. 262,460

Int. Cl. G05d *15/00*

U.S. Cl. 137—101 6 Claims

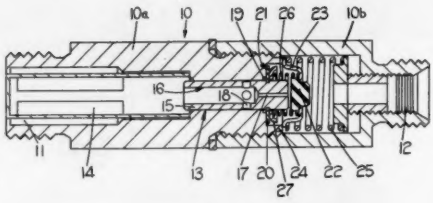


A directional control valve is provided having a pair of standard work positions and a pair of extreme work positions and having a pressure compensating piston arranged between an input and a parallel input line controlling the flow to said control valve, said compensating valve acting as a check valve when the control valve is in its extreme positions and a flow dividing and control valve between the pressure compensating valve and an overflow outlet for delivering excess fluid to a separate load circuit.

3,782,405
RELIEF VALVE

Matthew Potts, Solihull, England, assignor to Joseph Lucas (Industries) Limited, Birmingham, England

Filed Apr. 24, 1972, Ser. No. 246,582
Claims priority, application Great Britain, Apr. 29, 1971, 12249/71
Int. Cl. F16k *17/06*
U.S. Cl. 137—110 **5 Claims**

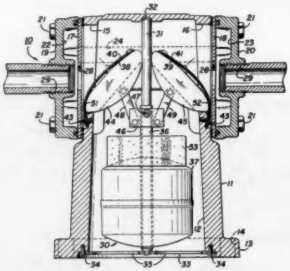


A relief valve includes a plunger in a bore in a body which is movable against spring loading by the pressure in the body to a position such that fluid can spill past the plunger when the pressure rises above a predetermined level. The plunger has a restricted passage through which vapour can leak away. On application of pressure to the bore the plunger is first moved against a light spring until it engages a closure member which closes the passage and the plunger and closure member there after move against a stronger spring to control spilling.

3,782,406
FLUID SEPARATOR

Howard E. Siebold, Libertyville, Ill., assignor to Liquid Controls Corporation, Chicago, Ill.

Filed May 18, 1972, Ser. No. 254,415
Int. Cl. F16k *1/14, 31/18*
U.S. Cl. 137—202 **7 Claims**



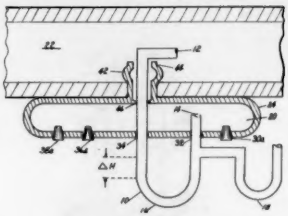
A float actuable valve mounted in an accumulator chamber includes a flexible, imperforate strip connected at one end adjacent a valve seat and at the other end to a swingable back-up shoe which is connected by a linkage to the float.

3,782,407
TAP ARRANGEMENT USEFUL WITH MEASURING MEANS

William L. Blackwell, 1202 New Market Rd., Immokalee, Fla.

Filed June 26, 1972, Ser. No. 266,134
Int. Cl. F16k *51/00*
U.S. Cl. 137—317 **4 Claims**

An arrangement for tapping a tube having a liquid flowing therethrough comprising in combination an elongated chamber adapted to be disposed alongside the outer wall of a tube to be tapped, having an extended wall adapted to rest next to said outer tube wall and a plurality of apertures adjacent said extended wall, a tap bore duct extending from said

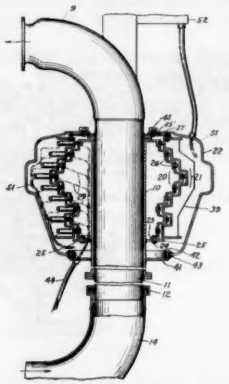


chamber at right angles thereto including an outer retaining ring towards the outer end of said bore for securing the elongated chamber to said tube outer wall, and a small ridge within said bore, narrowing the flow stream into said chamber.

3,782,408
CONTINUOUS CONTACT DISTRIBUTOR FOR USE WITH IRRIGATION SYSTEMS

William T. Martin, Touchet, Wash., assignor to Ivan C. Bollman and Vernon O. Bollman, both of Walla Walla, Wash., part interest to each

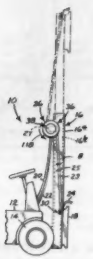
Filed May 26, 1972, Ser. No. 257,380
Int. Cl. B05b *9/02*
U.S. Cl. 137—344 **9 Claims**



This distributor is used in connection with irrigation systems for irrigating large tracts of land. These systems comprise long horizontal sprinkler pipes made up of a plurality of sections connected with each other by flexible tubular couplings. One end of this sprinkler pipe is connected with a centrally positioned source of supply of water under pressure by an upright conduit formed of a rotatable part and a non-rotatable part. The sprinkler pipe is carried on supports called towers which rest on wheels. An electric motor drives the wheels of each tower and current to these towers is supplied through this distributor. The distributor comprises two parts of insulating material, one carrying slip rings and supported by the non-

rotatable part and the other supported by the rotatable part and carrying contact members engaging the slip rings. A shroud encloses and shields both distributor parts. The walls of the distributor parts which carry the slip rings and contacts are of stepped construction to provide adequate spacing and insulation of each set of rings and contacts relative to adjacent sets.

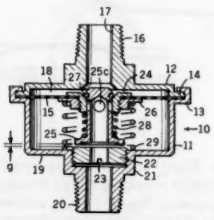
3,782,409
LINE TAKE-UP ASSEMBLY
Marshall K. House, and Michael D. Train, both of Portland, Oreg., assignors to Cascade Corporation, Portland, Oreg.
Filed Mar. 31, 1972, Ser. No. 240,101
Int. Cl. B65h *75/36*
U.S. Cl. 137—355.17 **16 Claims**



A take-up assembly for hydraulic hose. The assembly includes a rotary fluid coupling formed by a journal member and a hose connector which is rotatably mounted on the journal member--these two parts including intercommunicating fluid passages. The hose connector has flange which mounts other parts in the assembly that collectively form a hose-storing reel. These other parts contain cutaways which both axially and radially expose for access that portion of the hose connector to which a hose end may be attached.

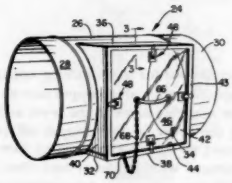
A take-up string in the assembly acts between the journal member and the reel, and features a nonangular inner end which is releasably locked to the shaft through mechanism that releases such end to prevent back-winding damage to the spring.

3,782,410
VALVE
Thomas A. Steuby, 6363 Olive Blvd., Kirkwood, Mo.
Filed Dec. 26, 1972, Ser. No. 318,010
Int. Cl. F16k *17/04*
U.S. Cl. 137—496 **6 Claims**



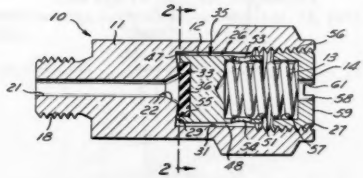
A check valve for preventing outflow of fuel from a broken or disconnected fuel line of an engine has coacting valve elements mounted on a diaphragm which normally is subjected to the negative intake pressures of the engine fuel pump. A relatively light spring tends to hold the valve elements in passage-closed position. The valve opens automatically when suction from the engine fuel pump moves the diaphragm, causing one of the valve elements to abut an adjustable stop member, whereafter continued movement of the diaphragm opens the valve passage. Such diaphragm movement is opposed by a second spring. Adjustment of the stop member enables the valve passage to be opened at a selected point in the range of diaphragm movement.

3,782,411
DUCT ACCESS SECTION
Lloyd Bowman Turner, Columbus, Ohio, assignor to United McGill Corporation, Columbia, Ohio
Filed June 30, 1972, Ser. No. 267,990
Int. Cl. F16k *17/04*
U.S. Cl. 137—467 **20 Claims**



A combination duct access section which, installed in a duct, provides the duct with an access opening, a transparent inspection door, and/or a vacuum relief valve.

3,782,412
UNBALANCED POPPET RELIEF VALVE
Raymond Nicholas Darash, Euclid, Ohio, assignor to The Weatherland Company, Cleveland, Ohio
Filed May 11, 1972, Ser. No. 252,407
Int. Cl. F16k *15/06*
U.S. Cl. 137—514 **4 Claims**

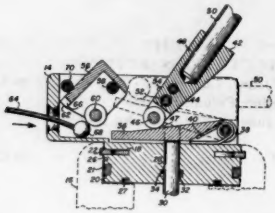


A relief valve assembly in which a spring supported poppet is stabilized against random movement or chatter by damping means responsive to relief flow. The damping means comprises a relief flow circuit which develops a fluid pressure distribution on the poppet having a net lateral component causing the poppet to frictionally engage axial guide surfaces of a poppet receiving chamber. Since frictional damping forces are only produced during relief flow, initial valve opening pressure is not adversely affected by irregular static frictional forces.

3,782,413
TRIGGER MECHANISM FOR GAS VALVING APPARATUS

Joseph Chacko, San Francisco, Calif., assignor to Sargent Industries, Inc., Los Angeles, Calif.

Division of Ser. No. 68,512, Aug. 31, 1970, which is a continuation of Ser. No. 801,640, Feb. 24, 1969, abandoned. This application June 12, 1972, Ser. No. 261,909
Int. Cl. F16k *31/524*
U.S. Cl. 137—565 12 Claims

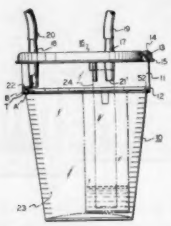


A triggering mechanism for a gas valving apparatus including a lever for displacing the valve poppet into its off position, an arming cam for applying force to the lever and a triggering cam for locking the lever in the poppet off position. The mechanism is armed by rotating the arming cam into poppet displacing engagement with the lever and then rotating the pull-cable actuated triggering cam into engagement with the lever to lock the poppet in the off position. Tension applied to the pull-cable releases the lever and allows the poppet to open.

3,782,414
BODY FLUID COLLECTION BOTTLE

LeGrand K. Holbrook, Salt Lake City, Utah, assignor to Medical Development Corporation, Salt Lake City, Salt Lake County, Utah

Continuation-in-part of Ser. No. 85,075, Oct. 29, 1970, Pat. No. 3,699,815. This application May 22, 1972, Ser. No. 255,768
Int. Cl. A61f *5/44*; E03c *1/181*
U.S. Cl. 137—575 4 Claims

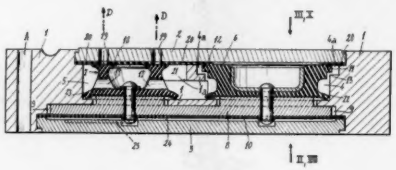


A vacuum operated body fluid collection bottle having an insert container of receptacle which is calibrated to receive accurately measurable, small quantities of body fluid collected within the bottle. Such insert includes overflow means whereby quantities in excess of a predetermined amount can overflow into the interior of the outside container. The insert container, in a preferred form of the invention, is positioned by means of a flange disposed against a shoulder provided within the interior of the bottle. Both outside and interior containers are uniquely calibrated to satisfy a variety of conditions. An anti-splash tube is incorporated and uniquely positioned within the bottle construction and is appropriately spaced from the lid thereof to provide for a free exhaust of air and hence a creation of reduced pressure conditions proximate the liquid inlet of the bottle.

3,782,415
DISTRIBUTOR FOR FLUID UNDER PRESSURE

Jean Gachot, 179 Avenue de la Division Leclerc, Enghien-les-Bains, and Simeon Lekarski, 138 Boulevard de la Republique, Saint-Cloud, both of France

Filed June 5, 1972, Ser. No. 259,830
Claims priority, application France, July 8, 1971, 7125024
Int. Cl. F16k *11/10*
U.S. Cl. 137—596.18 8 Claims

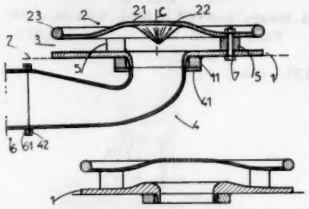


The invention relates to a distributor for fluid under pressure. The distributor is of the kind which comprises a first valve for controlling communication between an inlet and an outlet for the fluid, and a second valve for controlling communication between the outlet and atmosphere. According to the invention, the two valves are carried and controlled by a large area member comprising a membrane secured to a piston to permit actuation of the distributor by a low pressure fluid.

3,782,416
APPARATUS FOR FILLING AND EMPTYING RESERVOIRS

Leon Levin, Seyssinet, France, assignor to B.V.S., Grenoble, France

Filed May 23, 1972, Ser. No. 256,025
Claims priority, application France, June 28, 1971, 7123434
Int. Cl. F17d *1/10*
U.S. Cl. 137—590 2 Claims



A device for filling and emptying reservoirs through a lateral annular orifice providing a high through-put, low-speed fluid flow whose stream lines are slight and substantially equal right around the vertical axis of the device. The device includes a curved duct of constant cross-section whose wall portion on the side of the concavity substantially conforms to the shape of the fluid jet. An end of the duct opens vertically into a shaped diffusing opening covered by a deflector screen spaced from the shaped outlet.

3,782,417

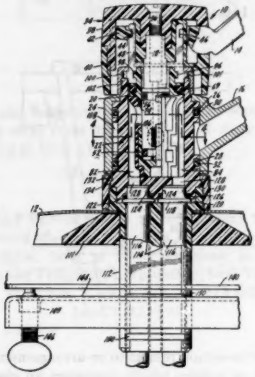
FAUCET CONSTRUCTION

Alfred M. Moen, 25 Lakeview Dr., Grafton, Ohio

Continuation-in-part of Ser. No. 147,327, May 27, 1971. This application June 22, 1972, Ser. No. 265,278

Int. Cl. F16k *11/02*

U.S. Cl. 137—625.17 25 Claims



A single lever mixing faucet has a stem rotatable and reciprocal relative to a surrounding sleeve. The stem and sleeve are positioned within a receiver and are pressure balanced by means of an air passage extending through the stem and connecting the interior space between the stem and the sleeve with atmosphere. The seals between the stem and receiver have portions in sealing contact with the stem, sleeve and receiver and cooperate with the interior surface of the receiver to define water passages between the receiver inlets and the sleeve inlets. The receiver and valve are supported on a body member and there are means to connect the receiver to the body member and to interlock the conduits within the body member to the receiver and to the body member.

3,782,418

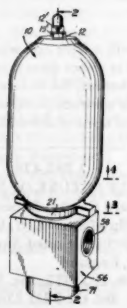
PRESSURE PULSE DAMPENER DEVICE

Abduz Zahid, Monterey Park, Calif., assignor to Greer Hydraulics, Inc., Los Angeles, Calif.

Filed Nov. 3, 1971, Ser. No. 195,243

Int. Cl. F16l *55/04*

U.S. Cl. 138—26 12 Claims



The invention relates to a pressure pulse dampener device comprising a pressure vessel having a movable partition therein defining two chambers, each having a port in communication therewith, one of the ports defining a gas port for charging of one of said chambers with gas under pressure and the other an oil port, said oil port having a hollow fitting rigidly secured at one end thereto, said fitting having an inlet port and an outlet port, the fitting having means therein defining a tortuous path for oil under pressure from said inlet port to said outlet port, the oil port being in communication with the tortuous path and means are provided in the fitting to afford a direct path from said inlet port to the outlet port for a portion of the oil under pressure entering the inlet port.

3,782,419

PIPE UNION

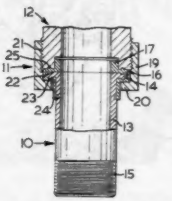
Thomas A. Hanson, 455 Devonshire Ave., Woodstock, Ontario, Canada

Filed Nov. 8, 1971, Ser. No. 196,540

Claims priority, application Great Britain, Nov. 7, 1970, 53,053/70

Int. Cl. F16l *11/12*

U.S. Cl. 138—109 1 Claim



A pipe union member includes a pipe having an outwardly directed annular flange adjacent a forward end of the pipe, the flange having forward and rear faces and an outer annular edge. A coating of electrical insulating material is moulded on to and extends around the forward end portion of the pipe. The coating extends over the forward and rear faces and the outer annular edge of the flange, and also extends forwardly of the flange to form a spigot insertable into the open end of another pipe.

3,782,420

CABLE INSTALLATION CONDUIT WITH L AND T JOINTS

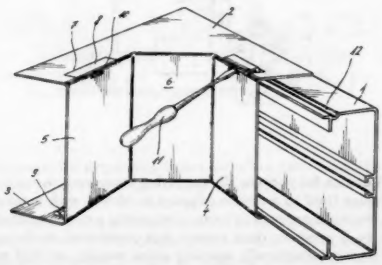
Peter Kolb, Pirmasens; Gottfried Pollak, Waldfischbach-Burgalben, and Rolf Sternjakob, Pirmasens, all of Germany, assignors to Firma Tehalit Kunststoffwerke GmbH, Heltersburg/Pfalz, Germany

Filed Apr. 14, 1972, Ser. No. 244,015

Claims priority, application Germany, Apr. 14, 1971, P 21 18 058.5

Int. Cl. F16l *9/00*

U.S. Cl. 138—156 3 Claims



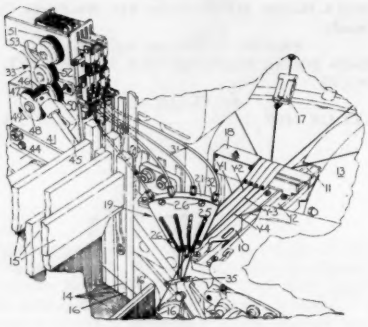
Cable conduit installation equipped with L-and T-connecting members which are provided with releasable means for

sliding on and interengagement with the installation conduit and/or means for sliding on and underlapping or overlapping with the conduit covering.

3,782,421
WEFT YARN CONTROL DEVICE

Edward S. Budzyna, East Douglas, Mass., assignor to Rockwell International Corporation, Pittsburgh, Pa.

Filed June 1, 1972, Ser. No. 258,554
Int. Cl. D03d *47/38*
U.S. Cl. 139—122 W **4 Claims**

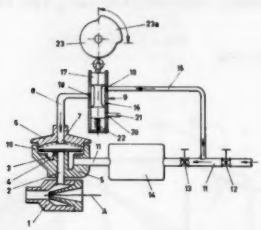


A weft yarn control device for looms having a control unit and a mechanism functioning in cooperation therewith for supporting and guiding a plurality of weft yarns from separate sources of supply and for enabling individual selection of the yarns in accordance with a desired pattern.

3,782,422
DEVICE FOR PERIODICALLY SUPPLYING MEASURED QUANTITIES OF A PRESSURE FLUID TO A NOZZLE

Geert Jan Vermeulen, Deurne, Netherlands, assignor to N.V. Machinefabrik L. Te Strake, Deune, Netherlands

Filed Apr. 7, 1971, Ser. No. 131,934
Claims priority, application Netherlands, Apr. 14, 1970, 7005367
Int. Cl. D03d *47/28*
U.S. Cl. 139—127 P **1 Claim**

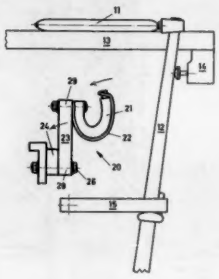


A device for periodically supplying measured quantities of a pressure fluid to a nozzle adapted to blow a weft thread into the shed of a pneumatic loom, comprising a metering chamber fed by a pressure fluid source and connected to the nozzle through a periodically opening valve means, control means being provided to influence the behaviour of the weft thread and more particularly to stabilize the position of the weft thread in the fluid jet irrespective of the nature of that thread.

3,782,423
ARRANGEMENT FOR BRAKING THE PICKER STICK OF A LOOM

Friedrich Lutz, Durnten/Zh, Switzerland, assignor to Ruti Machinery Works Ltd. (formerly Caspar Honegger), Ruti/ZH, Switzerland

Filed Aug. 10, 1972, Ser. No. 279,395
Claims priority, application Switzerland, Aug. 31, 1971, 12753/71
Int. Cl. D03d *49/40*
U.S. Cl. 139—166 **4 Claims**

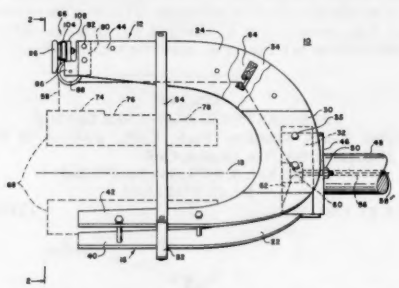


The present invention relates to an arrangement for braking a picker stick of a loom which comprises an elastic element which is compressed upon the braking of the picker stick.

3,782,424
REVERSIBLE CAST CONTROL DEVICE FOR FLYER WINDER

Ralph A. Vogel, Three Rivers, Mich., assignor to Essex International, Inc., Fort Wayne, Ind.

Filed Sept. 22, 1972, Ser. No. 291,228
Int. Cl. B21f *3/00*
U.S. Cl. 140—92.2 **5 Claims**



A device for use with a flyer coil winder for guiding wire to the coil being wound in either direction of rotation of the flyer and during reversal thereof, the device imparting a cast to the wire as it is wound in a direction to inhibit unwinding of the coil upon relaxation of tension thereon.

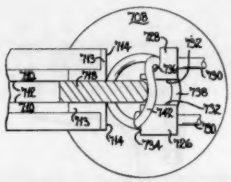
3,782,425
MANUFACTURE OF SPRINGS

Terence James Leonard Clarke; Robert Charles Quarmy, both of Groby, and Philip Michael Lett, Leicester, all of England, assignors to The British United Shoe Machinery Company Limited, Leicester, England

Filed Feb. 28, 1972, Ser. No. 230,014
Int. Cl. B21f *35/02*
U.S. Cl. 140—103 **4 Claims**

The invention relates to machines and methods for use in forming loops at end portions of coil springs of the type dis-

closed in U.S. Pat. No. 3,662,788 (U.S. Pat. application No. 33,271) but differing in that tools are provided whereby "German" type loops may be formed. A spring is supported by support means and operated on by three tools which bend a coil of the spring away from the remainder of the spring and permanently set it to form a loop.



3,782,426

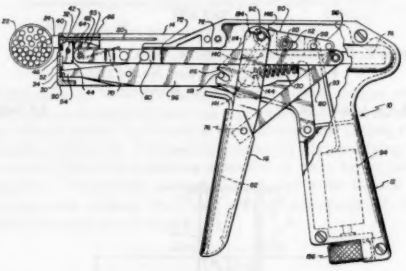
STRAP TENSIONING AND CUT-OFF TOOL

Thomas Edward Morgan, Cleveland Heights, and Robert Carl Koslo, Mentor, both of Ohio, assignors to International Telephone and Telegraph Corporation, New York, N.Y.

Filed Feb. 7, 1972, Ser. No. 223,900

Int. Cl. B21f *9/02*

U.S. Cl. 140—123.6 **6 Claims**



A pistol-grip, hand-operated tensioning and cut-off tool for cable straps or bundle ties is disclosed.

The tool receives the free end of the strap with the buckle or strap head held against the tool barrel. The strap is tensioned to a level which may be adjusted. When this level is reached, the tool automatically cuts off adjacent to the strap head. During the tensioning, the trigger responds to manual pressure to pivot about a pintle and slide a draw bar in a strap tightening direction. When the tension of the strap exceeds the tension of a counter biasing spring member, the trigger and the pintle-bearing member are pivoted together to slide a shearing edge against and through the cable strap at the tool barrel.

3,782,427

DEVICE FOR SHUTTING OFF THE RETURN GAS LINE OF COUNTERPRESSURE FILLING ELEMENTS OF MULTI-CHAMBER VESSEL FILLING MACHINES

Heinrich Zeimet, Bingen-Budesheim; Alfred Rentel, Bad Kreuznach-Winzenheim, and Horst Monz, Bad Kreuznach, all of Germany, assignors to Seitz-Werke G.m.b.H., Bad Kreuznach, Germany

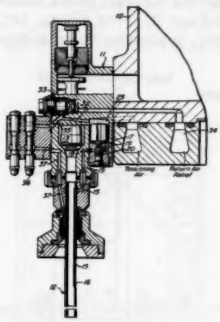
Filed Dec. 17, 1971, Ser. No. 209,097

Claims priority, application Germany, Dec. 19, 1970, P 20 62 669.1

Int. Cl. B65b *31/00*

U.S. Cl. 141—39 **12 Claims**

A device for shutting off the return gas conduit of a counterpressure filling device, which comprises a flow chamber interposed in the gas return conduit and communicating with a valve chamber interposed in said gas return and preceding said flow chamber while a load or weight body movable in said flow chamber sets upon the valve member in said valve chamber. This load body is adapted by means of its weight to adjust the valve body so that the latter occupies its opening position in which it is arrested by said load body. On the other hand, liquid rising in the valve chamber and from there into the flow chamber brings about lifting of the control member and movement of the valve member into closing position to shut off communication of the valve chamber with the flow chamber.



3,782,428

FOOD DISPENSING APPARATUS

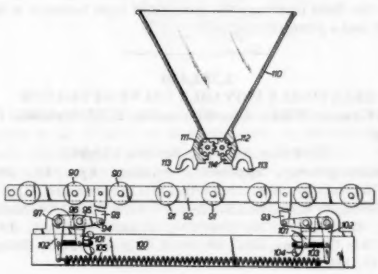
Thomas Edward Cartwright, and John Clifford Wightman, both of Glamorgan, England, assignors to Jones D. Ayers and Company Limited, Glamorgan, England

Filed July 20, 1971, Ser. No. 164,337

Claims priority, application Great Britain, Aug. 22, 1970, 40,553/70

Int. Cl. A21c *9/08*, **B65b** *3/36, 57/00*

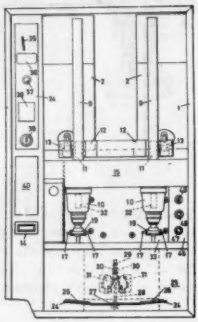
U.S. Cl. 141—115 **6 Claims**



Apparatus for dispensing batter, or other pasty foods, into a container on a travelling conveyor, including a motor driven pump dispenser and a motor driven conveyor and including means for reversing the direction of the pump for a brief moment at the end of each dispensing cycle, and simultaneously giving the container a vertical "jogging" movement. At the start of the next cycle the movement of the container is delayed by a stop for a brief interval after the pump has started

to dispense. The pump itself is of the gear type and one or both of the gear pinions has cut-away teeth to provide cavities in which small fruits can be carried through the pump without being damaged.

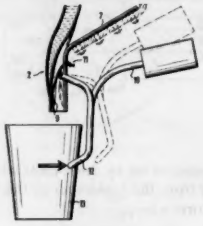
3,782,429
VENDING MACHINE
Arthur Adam Barber, Weston-Super-Mare, England, assignor to Barber Electrical Services Limited, Somerset, England
Filed Apr. 26, 1972, Ser. No. 247,729
Claims priority, application Great Britain, May 4, 1971, 12,860/71
Int. Cl. G07f *13/04*
U.S. Cl. 141—359 **7 Claims**



A drink vending machine has a cabinet in which two liquor containers are supported. A rubber hose connects each container to an optic type measure and to the bottom of a sight glass which extends upwardly from the optic type measure. Two platforms are mounted on a common lever below the measures respectively, and the lever is tipped by the weight of a drinking glass placed on one of the platforms, thereby closing a circuit which causes a drink to be discharged from the selected measure if coins are simultaneously deposited in a coin-feeding apparatus. A float in each sight glass may cause the coin slot to be blocked and an "empty" sign to light up when the float interrups the passage of light between a light source and a photoelectric cell.

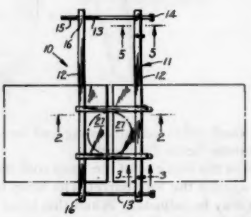
3,782,430
RELATIVELY MOVABLE VALVE ACTUATOR
Matti Gunnar Wilska, Ukovkinenpolku 2C27, Helsinki, Finland
Filed Mar. 16, 1971, Ser. No. 124,901
Claims priority, application Sweden, Apr. 14, 1970, 5053/70; Norway, Apr. 13, 1970, 1351/70; Denmark, Apr. 17, 1970, 1934/70; Great Britain, Dec. 17, 1970, 59,887/70; Netherlands, Dec. 11, 1970, 7018098; France, Dec. 11, 1970, 7044764; Germany, Dec. 10, 1970, P 20 60 910.3; Finland, Nov. 10, 1969, 3237/69
Int. Cl. B65b *3/04*; **B67d** *3/02*
U.S. Cl. 141—362 **1 Claim**

A method of forming a container includes placing two heat sealable material pieces in overlapping relationship and a method of forming a container for dispensing liquid using two pieces of material in overlapping relationship, forming a seam line at a location spaced inwardly from the edges of the materials around the periphery thereof and outwardly adjacent one end thereof to define a pouring spout portion extending outwardly from said body by spaced apart substantially parallel seam lines extending to the end of said pouring spout and defining a pouring opening therebetween, filling the container with a liquid through the opening of the spout portion, and thereafter forming a seal closure between the seal lines of the spout portion. The container thus formed includes



openings in a marginal area of the spout which provide a mounting engagement for the container on a support. The support carries a pivotal tongue which is biased by a weight to close the spout but which is shiftable such as by a drinking glass to be filled to open the spout to pour out the liquid.

3,782,431
ADJUSTABLE ROUTER GUIDE
Robert E. Cox, R. R. No. 1, Glencoe, Okla.
Filed May 11, 1971, Ser. No. 142,263
Int. Cl. B27c *5/10*; **B23q** *35/42*
U.S. Cl. 144—144.5 **2 Claims**

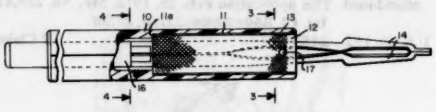


A tool for use by a carpenter and used particularly in cabinet construction work, the tool comprising a guide for a router and wherein the guide is adjustable, the guide being comprised of a pair of parallel guide bars interconnected by transverse extending adjustable bolts for selectively spacing the guide bars apart, and a plurality of transverse extending clamps extending across the guide bars for locating the router position.

3,782,432
SCREW HOLDING DRIVER
Philip H. Allen, Los Gatos, Calif., assignor to H.J.J. Co., Inc., Los Gatos, Calif.
Filed Mar. 1, 1972, Ser. No. 230,777
Int. Cl. B25b *15/02*
U.S. Cl. 145—50 E **1 Claim**

An insulated screw holding driver has a tubular plastic handle which encases the working elements of the screw holder

including twin expanding bits and their control housing, rod and cam pin pre-assembled as an insert into the handle which



holds this assembly and its components in place. The handle has an outer polygonal contour and an inner circular contour.

3,782,433

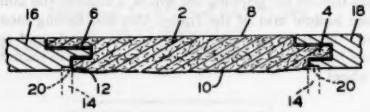
METHOD OF CUTTING A JOINT IN A CEILING TILE

John R. Garrick, Lancaster, and Jerald E. Miller, Fleetwood, both of Pa., assignors to Armstrong Cork Company, Lancaster, Pa.

Filed Oct. 30, 1972, Ser. No. 302,248

Int. Cl. B27f *1/06*; B27m *3/00*

U.S. Cl. 144—323 **1 Claim**



Conventional ceiling tiles are provided with tongue and groove joints for interconnecting a plurality of tiles together. The method herein is directed to the technique for cutting the joints in a ceiling tile. The method comprises the prescoring of the painted board face surface immediately prior to the joint formation. This permits a very uniform edge to be formed at the joint-face surface interface without disruption of the painted face surface of the tile.

ERRATUM

For Class 145—50 E see:
Patent No. 3,782,432

3,782,434

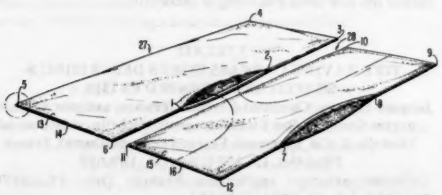
BOOKBAGS

Eugenia D. Lebherz, 1011 Shipman Ln., McLean, Va.

Filed June 25, 1971, Ser. No. 156,761

Int. Cl. B65d *29/02*

U.S. Cl. 150—1 **4 Claims**



This invention relates to bookbags and more particularly to bookbags constructed solely from fabric materials. This bookbag is designed specifically to be balanced over the shoulder.

3,782,435

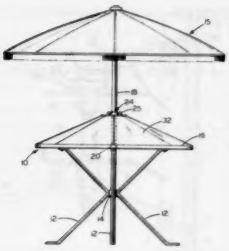
TABLE PROTECTOR

Ralph H. Sherman, Central St., Georgetown, Mass.

Filed June 13, 1972, Ser. No. 262,348

Int. Cl. A47b *37/04*

U.S. Cl. 150—52 R **5 Claims**



A table ordinarily suitable for dining outdoors is provided with an upstanding shaft from the horizontal eating surface and pivotally mounted thereon a spaced distance from the horizontal surface of the table are a plurality of elongated arms. The arms carry a flexible sheeting and may be selectively positioned against the upper face of the table in oblique relationship. In this position the protector prevents birds or debris from landing on the table. The elongated arms may be selectively positioned upwardly to allow normal usage of the table.

3,782,436

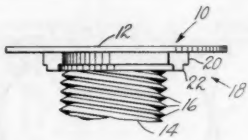
CLINCH STUD

Joseph Steiner, 16 Forest Glen Rd., Valley Cottage, N.Y.

Filed July 21, 1972, Ser. No. 274,086

Int. Cl. F16b *39/282*

U.S. Cl. 151—41.73 **5 Claims**



A self-clinching stud has a head and a threaded shank adapted to be secured in sheet material. In the locality integrally adjoining the head and shank, stepped concave lands alternate circumferentially with convex unstepped lands. This configuration produces a flow in sheet metal, when the stud is pressed into a hole having a diameter about equal to the shank diameter and less than that of the lands, that holds the stud against unscrewing as well as axial pull out.

3,782,437

THREADED BOLT AND MOUNTING THEREFOR

Clifford Alexander Seckerson, Iver Heath, Buckinghamshire, England, assignor to TRW Inc., Cleveland, Ohio

Filed Sept. 29, 1971, Ser. No. 184,754

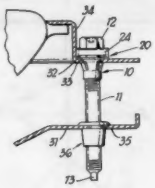
Claims priority, application Great Britain, Oct. 5, 1970, 47,319/70

Int. Cl. F16b *39/26*

U.S. Cl. 151—49 **5 Claims**

A two-part threaded fastener comprising a bolt and a retainer captive on the bolt suitable for use as a vehicle

headlamp reflector bowl adjustment screw. The bolt has a threaded shank which is formed with resilient projecting means adjacent to but spaced from an externally non-circular head. The retainer comprises a base having an aperture through which the resilient projecting means on the shank of the bolt is a force fit so that the base is captive between the head and the resilient means. The retainer is also formed with



at least one upstanding wall and the head of the bolt with at least one face adapted to inter-engage with the wall on the retainer to resist relative rotation between the bolt and the retainer, the wall of the retainer being sufficiently resilient to allow rotation of the head of the bolt relative to the retainer when the bolt is subjected to a predetermined torque sufficient to deflect the wall.

3,782,438

PNEUMATIC TIRE AND TREAD THEREFOR HAVING VARIABLE ROLLING CONTACT WITH THE GROUND

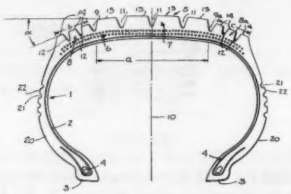
Henri Jean Mirtain, Compiegne, France, assignor to Uniroyal, Clairoix Oise, France

Filed Mar. 6, 1972, Ser. No. 232,130

Claims priority, application France, Mar. 12, 1971, 7108761

Int. Cl. B60c *11/04*

U.S. Cl. 152—209 R **40 Claims**



A high speed pneumatic tire with a tread whose width of running contact with the ground is automatically variable. The tread consists of a central portion that is in constant contact over its entire width with the ground and two lateral shoulder portions which are respectively arranged on each side of the central portion and are each separated from the central portion by an essentially continuous circumferential groove that forms a flexible joint or coupling. Each lateral shoulder portion of the tread is radially contracted and inclined with respect to the central portion so that it contacts the ground where required by the dynamic forces on the tire, e.g., acceleration, turning and braking. The central and lateral shoulder portions of the tread each may have the same or different design patterns for particular purpose, e.g., snow, antiskid. The tire may have a radial carcass and may also include a reinforcing breaker formed of continuous or discontinuous layers.

3,782,439

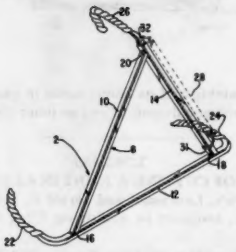
ANTI-SKID TRACTION DEVICES

Henry Pergament, Hawley Rd., North Salem, N.Y.

Continuation-in-part of Ser. No. 215,536, Jan. 5, 1972, abandoned. This application Feb. 25, 1972, Ser. No. 229,417

Int. Cl. B60c *27/04*, *27/10*, *27/20*

U.S. Cl. 152—218 **7 Claims**



An anti-skid traction device for mounting on the weeel of a vehicle comprises a triangular frame having means at two apices thereof for gripping the wheel, a slidable rod contained in one hollow arm of the frame, this rod having means adjacent the third apex for gripping the wheel, and resilient means for moving the rod into the hollow arm to securely grip the wheel.

3,782,440

PNEUMATIC VEHICLE TIRE

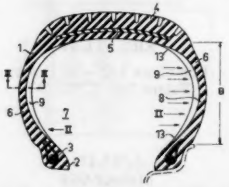
Lothar Depmeyer, Garbsen, Germany, assignor to Continental Gummi-Werke Aktiengesellschaft, Hannover, Germany

Filed Mar. 20, 1972, Ser. No. 236,054

Claims priority, application Germany, Mar. 20, 1971, P 21 13 627.6

Int. Cl. B60c *9/14*

U.S. Cl. 152—330 **7 Claims**



A pneumatic vehicle tire, in which the side walls consist of rubber material only without having strength members members embedded therein, but are reinforced by ribs on the inside of the side walls and integral therewith.

3,782,441

TIRE HAVING CARCASS CORDS DESCRIBING S-SHAPED AND Z-SHAPED PATHS

Jacques Boileau, Clermont-Ferrand, France, assignor to Compagnie Generale Des Establissements Michelin, raison sociale Michelin & Cie, Clermont-Ferrand (Puy-de-Dome), France

Filed Oct. 15, 1971, Ser. No. 189,657

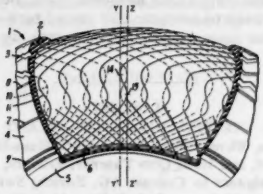
Claims priority, application France, Oct. 19, 1970, 7037730; July 30, 1971, 7128183

Int. Cl. B60c *9/10*

U.S. Cl. 152—356 **10 Claims**

The carcass reinforcement of a pneumatic tire extends continuously from one bead wire to the other. The cords of the reinforcement have a substantially longitudinal orientation

under the tread portion, an oblique orientation between the midpoint of each sidewall and the corresponding bead wire, and, between the midpoint of each sidewall and the corresponding shoulder, an S-shaped path tangent at two circumferentially and radially separated points to radial planes of the tire.

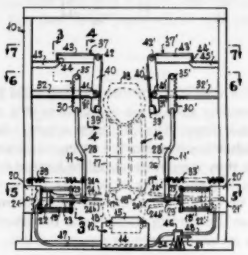


3,782,442

ADJUSTABLE THRUST MECHANISM FOR SEPARATING THE BONDS BETWEEN ANNULAR COMPONENTS OF PNEUMATIC TIRE-WHEEL ASSEMBLIES

Jake James, Jr., Rt. No. 1, Danville, Ark.

Filed Sept. 2, 1971, Ser. No. 177,394
Int. Cl. B60c *25/06*
U.S. Cl. 157—1.26 **2 Claims**



Apparatus for separating bonds between annular tire-wheel components such as wheel flanges, bead rims, locking rings and tire beads. In the separation of tire beads from wheel rims, for example, the free contact end of an elongated reciprocable thrust tool is swingably mounted about a fixed pivot, transversely of a bead-engaged flange, and to selected pressure-applying positions where it may be releasably fixed in position. The thrust tool may be employed singly in breaking only one bead of an assembly, or in combination with an opposing thrust tool when simultaneously breaking both tire beads. The mechanism is further characterized by a pair of manually operable levers engageable with opposed faces of the tire at points diametrically opposite the thrust tool to thereby stabilize the assembly during a bond breaking operation.

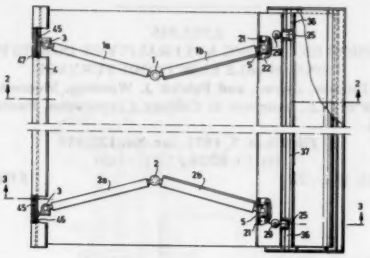
3,782,443

ROLL-UP AWNING CONSTRUCTION

Manfred Clauss, and Ulrich Clauss, both of Esslingen-Mettingen, Germany, assignors to Firma "Clauss-Markisen" Manfred u. Ulrich Clauss, Esslingen-Mettingen, Germany

Filed Sept. 9, 1971, Ser. No. 179,052
Claims priority, application Germany, Feb. 17, 1971, P 21 07 477.1
Int. Cl. E04f *10/06*
U.S. Cl. 160—22 **19 Claims**

A box-like housing, made of formstable, rigid material such as extruded aluminum has a holder for an awning roll therein, the awning roll terminating in a terminal bar, likewise an extruded aluminum or other light-weight metal member. The terminal bar is connected to the housing by jointed, articulated arms which are secured to the housing itself by bearing members attached to a transverse rail hooked into the housing so that a single box-like structure is provided which can be secured to a support surface, such as a wall, and additional attachments of support arms, and the like, are avoided. Adjustable stops limit the angle of inclination permitted to the bearings for the arms, so that the angle of the projecting awning can be adjusted. The projecting arms are made of interfitting light-weight metal sections, such as a generally U-shaped section into which a trapeze-shaped section fits, the awning housing being formed with a recess against which a brush can bear to clean the awning as it is rolled in or out.

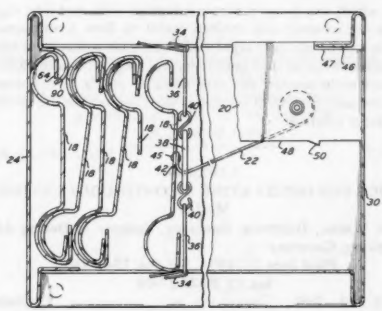


3,782,444

FIRE DAMPER BLADES AND SPECIAL FRAME

Fred E. Rapp, Andorra Rd., Lafayette Hill, Pa., and William V. Bault, 1300 Prospect Hill Rd., Villanova, Pa.

Filed May 17, 1971, Ser. No. 144,148
Int. Cl. E06b *9/00*; **E05f** *15/20*
U.S. Cl. 160—235 **4 Claims**



Fire damper blades and special frame for use in a safety fire damper assembly wherein a first embodiment involves substantially identical blades that are interlocked at the ends thereof, one to the other, wherein each blade end is comprised of an arcuate section extending for approximately 180° to form a semi-circle and terminating in a tab which partially closes the semi-circle, with the arc being essentially truly circular. In one form, a blade assembly having the foregoing construction the various blades will rotate, one on the other, for at least 180° to provide the greatest theoretical coverage for a given blade width. In this form of the invention each blade is essentially identical. In another form of the invention, one

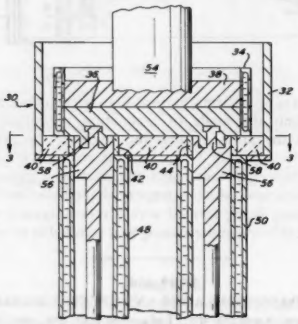
blade end will be as previously described, but the other blade end will terminate in a tab which covers a greater portion of the semi-circular opening and which includes a further tab extension which is bent back over the original tab to provide a double fold. In this form of the invention the blades will rotate with respect to each other for only about 120°, but this will form a more rigid structure that may be necessary under certain conditions.

3,782,445

METHOD OF CASTING A PLURALITY OF INGOTS IN A CONSUMABLE ELECTRODE FURNACE

John Luchok, Delran, and Patrick J. Wooding, Moorestown, both of N.J., assignors to Consarc Corporation, Rancocas, N.J.

Filed Sept. 7, 1971, Ser. No. 177,939
Int. Cl. B22d *27/02, 11/10*
U.S. Cl. 164—52 **5 Claims**



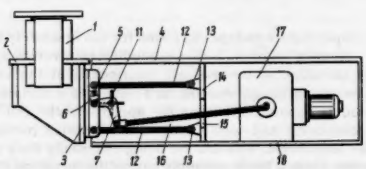
A method and apparatus for continuously casting one or more ingots by maintaining a pool of molten metal in a first ingot section that has a larger transverse cross-sectional area than the transverse cross-sectional area of the ingot mold or molds which are in open communication with said first ingot section by causing said molten metal to flow continuously from said pool into said ingot mold or molds while preventing the molten metal in said pool from freezing at the interface of said first mold section and said mold or molds. A refractory lining for said first mold section is used to prevent the molten metal from freezing.

3,782,446

DEVICE FOR OSCILLATING A CONTINUOUS CASTING MOLD

Gustav Walter, Duisburg, Germany, assignor to Demag AG, Duisburg, Germany

Filed June 21, 1971, Ser. No. 154,754
Int. Cl. B22d *27/08*
U.S. Cl. 164—260 **11 Claims**



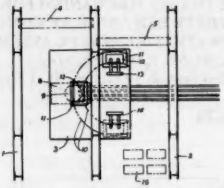
In a continuous casting plant, a mold is mounted in a mold table which is supported on a rigid frame by oscillating means. The oscillating means includes a bell crank attached to the mold table and pivotally supported on the rigid frame. A drive member and power transmission rod mounted on the support frame pivot the bell crank lever which in turn oscillates the mold table and mold. Guide members symmetrically arranged about the power transmission rod extend between the mold table and the support frame to which they are pivotally attached.

3,782,447

CONTINUOUS CASTING PLANT

Fritz Willim, Birmensdorf, Switzerland; Hans-Dieter Schulz, Dusseldorf, and Hans Otto Thorner, Erhrath, both of Germany, assignors to Concast AG, Zurich, Switzerland and Schloemann Aktiengesellschaft, Dusseldorf, Germany

Filed Apr. 7, 1971, Ser. No. 132,109
Claims priority, application Germany, Apr. 7, 1970, P 20 16 435.6
Int. Cl. B22d *11/10*
U.S. Cl. 164—281 **11 Claims**



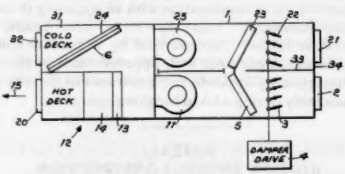
In a continuous casting plant the casting mold or molds are mounted at a casting station on a platform in a casting shop adjacent to a side shop. The platform extends into the side shop, and tundishes are transported on curved tracks from the side shop where they may be repaired or heated to the casting station in the casting shop. The ladle crane in the casting shop can, therefore, be used exclusively for transporting the heavy ladle to and from the casting station, and the tundishes can be moved by other means including a separate crane.

3,782,448

AIR CONDITIONING STRUCTURE

Ralph E. Clark, Abington, Pa., assignor to International Telephone and Telegraph Corporation, Nutley, N.J.

Filed May 18, 1972, Ser. No. 254,686
Int. Cl. F28f *27/00*
U.S. Cl. 165—16 **4 Claims**



An air conditioning structure wherein an outside air flow path is vertically positioned above a return air flow path, each flow path including an evaporator structure and an air drive fan. The two paths are separated by a floor to minimize the commingling of the return and outside air and separate air drive fans are provided for each path driven. The return air path includes a hot deck and the outside air path includes a cold deck.

3,782,449

TEMPERATURE STABILIZATION SYSTEM

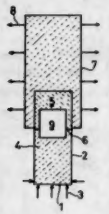
Claus Busse, Laveno, and Karl Schlitt, Ispra, both of Italy, assignors to European Atomic Energy Community (Euratom), Luxemburg European Center Kirchberg, Luxembourg

Filed Nov. 24, 1969, Ser. No. 879,505

Claims priority, application Luxembourg, Dec. 5, 1968, 57.482

Int. Cl. F28d *15/00*

U.S. Cl. 165—32 7 Claims



A system for temperature stabilization through the use of a heat pipe, that zone of the heat pipe which is remote from the heating zone having an inert gas plug whose volume varies with the vapour pressure of the heat vehicle. The plug effects variation in the heat pipe wall area actually radiating heat according to changes in the volume of the plug, and includes a secondary heat pipe which is in good thermal connection with that part of the first heat pipe where the inert gas plug is disposed.

3,782,450

HEAT EXCHANGER WITH NESTS OF TUBES

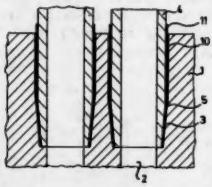
Adolf Swozil, Ellgau Uber Donauworth, Germany, assignor to Sigri Elektrographit GmbH, Augsburg, Germany

Filed Apr. 6, 1972, Ser. No. 241,585

Claims priority, application Germany, Apr. 23, 1971, P 21 19 820.9

Int. Cl. F28b *5/00*

U.S. Cl. 165—81 3 Claims



Heat exchanger with nests of tubes having tube plates consisting of graphite. The tubes are cemented into recesses or holes of the tube plates. The depth of the recess is greater, preferably at least twice as great, as the height of the cement layer. The remaining ring gap is filled with substances in powder form or with such substances which do not bond with the cement mass.

3,782,451

HYDRAULIC FLOW DISTRIBUTION SYSTEM FOR MULTIPLE PASS AIR COOLED HEAT EXCHANGER

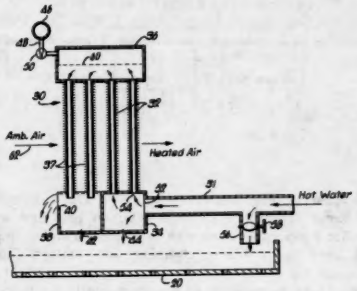
Robert E. Cates, Leawood, Kans., assignor to The Marley Company, Mission, Kans.

Filed June 19, 1972, Ser. No. 264,150

Int. Cl. F28g *9/02*

U.S. Cl. 165—38 17 Claims

A multiple pass heat exchanger for cooling a fluid and having upright fluid conveying structure including separate, intercommunicating heat exchanger tube sections for upward and downward flow of fluid relative to a cooling medium such as air and wherein a fluid supply header is joined to the lower end of one of the sections, an overflow weir box is provided at the lower end of the other section with the weir box having an overflow opening while the header has an inlet opening, a fluid supply line is joined to the header inlet and has a valve controlled by-pass line extending therefrom and the weir box and



header both have drain orifices therein of smaller size than the overflow opening and inlet respectively, yet larger in diameter than the inlets of the heat exchanger tubes whereby upon interruption of the normal supply of fluid to the sections through said supply line, automatic draining of the sections occurs without the use of mechanical or electrical controls. Similarly, automatic filling of the sections may be accomplished, and if desired any proportion of the fluid to be cooled may be bypassed around the sections.

3,782,452

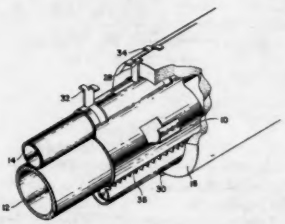
SPACER SYSTEM FOR USE WITH PIPES EMPLOYING TRACER LINES

Peter Sol Ceplon, 267 S. Main St., Mansfield, Mass.

Filed May 5, 1972, Ser. No. 250,698

Int. Cl. F28f *13/00*

U.S. Cl. 165—135 7 Claims

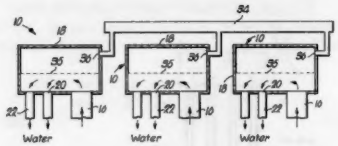


A spacer system, including a removeable metal spacer and a standoff; for use with pipelines employing tracer lines for heat transfer. The spacer system serves to support an outside casing of insulation at a distance from the inner pipe to create an air space and also serves to improve the heat transfer between the tracer line and the pipe.

3,782,453
SIPHON BREAKING VENT MANIFOLD FOR MULTIPLE PASS HEAT EXCHANGER

Robert E. Cates, Leawood, Kans.; Robert M. Mitchell, and James R. Houx, both of Kansas City, Mo., assignors to The Marley Company, Mission, Kans.

Filed June 19, 1972, Ser. No. 264,148
Int. Cl. F28f 9/26
U.S. Cl. 165—138 **9 Claims**

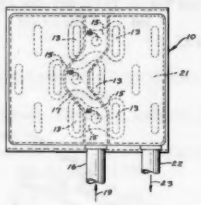


Liquid cooling apparatus comprising a series of upright heat exchange structures, each of which is provided with a top header cooperable therewith to present a siphon piping loop for assisting in filling, draining and uniform liquid flow through the exchangers. A common vent manifold interconnects all of the headers to maintain nearly atmospheric pressure above the liquid level therewithin while required vent air is supplied through the bottom of at least one of the heat exchange structures. As a result, during filling of the exchangers, siphon action is initiated substantially simultaneously in conjunction with automatic closing of the venting conditions through the bottom of at least one heat exchanger to assure equal liquid flow distribution from the common supply to all of the headers and thereby the heat exchangers joined thereto.

3,782,454
HEAT EXCHANGER

Raymond S. Slaasted, and Edward D. Smith, both of Racine, Wis., assignors to Modine Manufacturing Company, Racine, Wis.

Filed Feb. 24, 1972, Ser. No. 229,062
Int. Cl. F28f 9/26
U.S. Cl. 165—144 **10 Claims**

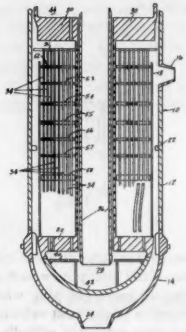


A heat exchanger including a header plate and a plurality of tubes having ends extending through the plate with an inlet tank mounted on the plate enclosing a number of the tube ends with a liquid pipe to the inlet tank for supplying liquid thereto and thereby distributing liquid by way of the inlet tank to the tubes enclosed by the inlet tank. There are also provided additional flow tank means mounted on the plate enclosing the remaining tube ends for flow of liquid through the tubes. The result of this construction is that the liquid is distributed evenly to the tubes whose ends are enclosed by the inlet tank so that flow in parallel paths is substantially uniform through these enclosed tubes.

3,782,455
HEAT EXCHANGER TUBE MOUNTS

Walter Wolowodiuk, New Providence; John Anelli, Parsippany, and Bruce Edgar Dawson, Chatham, all of N.J., assignors to The United States of America as represented by the United States Atomic Energy Commission, Washington, D.C.

Filed May 1, 1972, Ser. No. 248,842
Int. Cl. F28b 9/00
U.S. Cl. 165—162 **8 Claims**

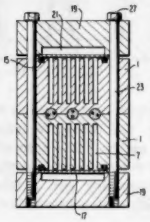


A heat exchanger in which tubes are secured to a tube sheet by internal bore welding, which tubes may be moved into place in preparation for welding with comparatively little trouble. A number of segmented tube support plates are provided which allow a considerable portion of each of the tubes to be moved laterally after the end thereof has been positioned in preparation for internal bore welding to the tube sheet.

3,782,456
HEAT EXCHANGE WITH RESILIENT LIQUID ACCUMULATOR

Frederick E. Gusmer, 1121 Ocean Ave., Mantoloking, N.J.

Filed Nov. 30, 1972, Ser. No. 310,946
Int. Cl. F28d 7/00
U.S. Cl. 165—164 **7 Claims**



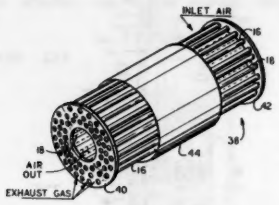
A heat exchanger with resilient liquid accumulator comprises a pair of heater blocks back-to-back on opposite sides of heater elements and having oppositely outwardly opening grooves for a liquid to be heated. The grooves are closed by spring metal plates that are held in place by cover plates. The cover plates are recessed on the outer side of the spring metal plates to permit expansion of the spring metal plates. The assembly is held together in sandwich fashion by tie bolts.

3,782,457

RECUPERATOR AND METHOD OF MAKING

Walter C. Troy, National City, Calif., assignor to Rohr Corporation, Chula Vista, Calif.

Filed Oct. 26, 1971, Ser. No. 191,998
Int. Cl. F28d 9/00
U.S. Cl. 165—165 **4 Claims**



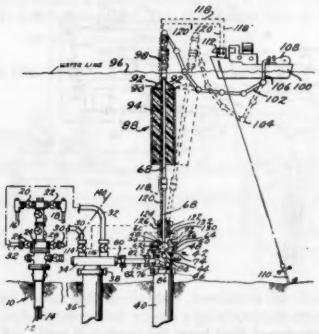
Recuperator having unusually high heat transfer capability is made up of casing with headers, and matrix having tubes extending between headers and fins integral with tubes. In preferred form a continuous web of metal foil, such as stainless steel, is repeatedly folded on itself to form multiple spaced corrugations extending from one side of web. Each corrugation is pinched together at its open edge and seam welded to produce tube integral with web. Web is then wrapped on itself in spiral arrangement to produce matrix of multiplicity of very small parallel tubes. The tubes of each wrap are in contact with the web of the adjacent wrap but not secured thereto. All portions brace each other, and integral fins provide maximum heat transfer. Tubes are rigidly connected only to headers, and mid portion of matrix is free to work in response to temperature gradients, greatly reducing localized stresses.

3,782,458

UPRIGHT, SWIVELABLE BUOYED CONDUIT FOR OFFSHORE SYSTEM

John Slack, Houston, Tex., assignor to Gray Tool Company, Houston, Tex.

Filed Aug. 4, 1971, Ser. No. 169,036
Int. Cl. E21b 33/035
U.S. Cl. 166—.5 **26 Claims**



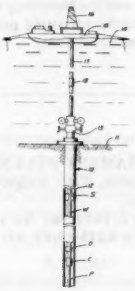
The basic device of the invention includes a submerged, bottom supported ball joint having a conduit extending upwardly therefrom, a body of flotation material secured on the conduit above the center of gravity thereof so that the conduit is buoyed in a generally vertical condition and emergent means at the upper end of the conduit for accomplishing the desired use of the device. This latter means may include means for connecting another conduit thereto, valving and control means, visual indicators and the like. The means which anchor the device to the bottom may be a partly or fully completed petroleum well wellhead, or a portion thereof, an anchor pipe or similar means.

3,782,459

METHOD FOR CUTTING AND RETRIEVING PIPE FROM A FLOATING DRILL SHIP

William K. Murray, Bossier City, La., assignor to Tri-State Oil Tool Industries Inc., Bossier City, La.

Filed Dec. 16, 1971, Ser. No. 208,652
Int. Cl. E21b 29/00
U.S. Cl. 166—.5 **15 Claims**



A method and apparatus for cutting and retrieving a well pipe (having connecting collars and disposed within a well bore) from a floating drill ship utilizing a drill string, slack joint, downhole swivel, washover pipe, overshot and outside cutter; wherein the cutter is lowered into the well bore by means of the drill string until the cutter is in cutting relationship with the pipe and spaced longitudinally from one of the collars, the drill string is anchored in the well bore at a point between the cutter and the slack joint, the cutter is operated to sever the pipe, and the severed pipe section is retrieved by means of the drill string.

This abstract is neither intended to define the invention of the application, which of course is measured by the claims, nor is it intended to be limiting as to the scope of the invention in any way.

3,782,460

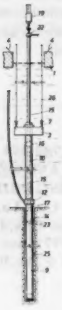
METHOD OF INSTALLING A COMBINATION PEDESTAL CONDUCTOR AND CONDUCTOR STRING AT AN OFFSHORE LOCATION

Denis J. Skinner, The Hague, Netherlands, assignor to Shell Oil Company, Houston, Tex.

Filed Aug. 1, 1972, Ser. No. 277,004
Claims priority, application Great Britain, Aug. 24, 1971, 39,636/71
Int. Cl. E21b 7/12, 33/035
U.S. Cl. 166—.5 **4 Claims**

A pedestal conductor, buoyancy member, and conductor string are installed at an offshore location by lowering the con-

ductor string into the borehole during drilling, cementing the conductor string in the borehole, and subsequently lowering



the pedestal conductor and the buoyancy member along a drill string to engage said conductor string prior to removing said drill string from said conductor string.

3,782,461

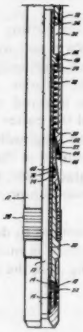
PRESSURIZED CHAMBER WELL SAFETY VALVE

Fred E. Watkins, Houston, Tex., assignor to Camco, Incorporated, Houston, Tex.

Filed June 1, 1971, Ser. No. 148,607

Int. Cl. E21b *33/03, 43/12*

U.S. Cl. 166—72 **4 Claims**



In a well safety valve for controlling the flow through a well conduit which has a pressurized chamber acting to move the valve toward the closed position and control pressure means extending from the well surface acting to move the valve toward the open position, the improvement of insuring that the control pressure is applied to all of the seals enclosing the pressurized chamber and that the pressure in the well conduit is isolated from the pressurized chamber seals to provide a fail safe valve. Passageway means extending from the control pressure to a position to apply the control pressure against the pressurized chamber seals on a side remote from the pressurized chamber, and seal means between the interior of the well conduit and said control pressure thereby isolating the pressurized chamber from the pressure in the well conduit.

3,782,462

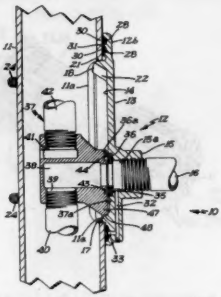
PITLESS WELL ADAPTOR

Dean C. Kramer, Mason City, Iowa, assignor to Martinson Mfg. Co., Inc., Sheffield, Iowa

Filed Apr. 28, 1972, Ser. No. 248,618

Int. Cl. E21b *33/03*

U.S. Cl. 166—88 **3 Claims**



A pitless well adaptor includes a casing engaging member or saddle which is clamped against the well casing and around the opening therein, and is connected to a horizontal delivery pipe. A pair of positioning elements on the casing engaging member permit the latter to be properly orientated with respect to opening in the casing, and a pair of annular sealing elements are interposed between the exterior surface of the casing and the casing engaging member to form a seal thereat. The annular space between the sealing elements defines a pressure passage which communicates with the main passage through the adaptor so that the external seal is under system pressure. A coupling member, which is connected to the well pipe, is releasably interconnected to the casing engaging member by coacting tapered guide elements to thereby intercommunicate the well pipe to the delivery pipe.

3,782,463

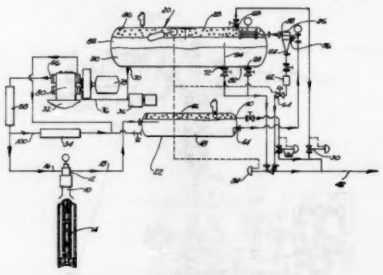
POWER FLUID CONDITIONING UNIT

Harold H. Palmour, Humble, Tex., assignor to Armco Steel Corporation, Middletown, Ohio

Filed Nov. 14, 1972, Ser. No. 306,391

Int. Cl. E21b *43/00*

U.S. Cl. 166—68 **13 Claims**



A one well, self contained, wide producing range, hydraulic pumping system comprising a power fluid conditioning unit to condition produced fluid from the produced well fluid so that it will be suitable for use as a power fluid, to economically pump a well which produces medium to large volumes from average to greater depths of lift, with the operator being able to use either power oil or power water for power fluid from the same power fluid conditioning unit, as desired.

3,782,464

DEVICE FOR SUSPENDING MEASURING INSTRUMENTS IN A DRILL STRING

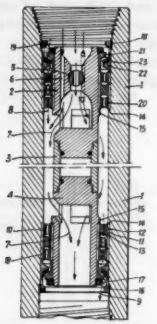
Claude Quichaud, Rue Des Chenes; Jean-Pierre Le Peuvedic, Montardon, and Jacques Tinchon, Torrance, all of France, assignors to Societe Nationale Des Petroles D'Aquitaine, Courbevoie, France

Continuation of Ser. No. 141,722, May 10, 1971, abandoned. This application Aug. 29, 1972, Ser. No. 284,553

Claims priority, application France, May 11, 1970, 7017018

Int. Cl. E21b *33/00*

U.S. Cl. 166—224 **5 Claims**



A collar for holding an instrument in a drill string is provided with a housing for attachment to the instrument, and elastomeric suspension means connecting the housing to the collar. Both housing and suspension means are pierced to pass drilling mud. A passage in the housing is controlled by a first valve responsive to the instrument. A second valve controls the passage defined between the housing and drill collar and containing the suspension means. The second valve is pressure responsive and closes whenever the first valve is closed. The object is to provide a sharper change in volume of drilling mud flow when the first valve is operated and consequently to transmit a clearer signal along the column of drilling mud.

3,782,465

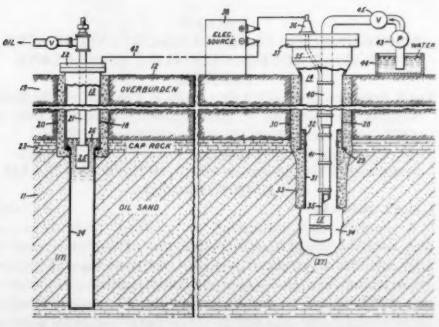
ELECTRO-THERMAL PROCESS FOR PROMOTING OIL RECOVERY

Christy W. Bell, Berwyn, and Charles H. Titus, Newtown Square, both of Pa., assignors to Electro-Petroleum Inc.

Continuation-in-part of Ser. No. 88,854, Nov. 12, 1970, abandoned, and a continuation-in-part of Ser. No. 855,637, Sept. 5, 1969, abandoned. This application Nov. 9, 1971, Ser. No. 196,917

Int. Cl. E21b *43/24*

U.S. Cl. 166—248 **19 Claims**



The flow of oil from underground oil-bearing formations is stimulated and directed by the steps of locating a relatively small anode in a cavity at an approximately medial elevation of one region of the formation, injecting saline water into that cavity, raising the electric potential of the anode with respect to a laterally adjacent region of the formation, and withdrawing oil from a producing well penetrating said adjacent region.

3,782,466

BONDING CASING WITH SYNTACTIC EPOXY RESIN

Jimmie Brown Lawson; Edwin A. Richardson, and George O. Suman, all of Houston, Tex., assignors to Shell Oil Company, Houston, Tex.

Filed July 19, 1972, Ser. No. 273,082

Int. Cl. E21b *33/14*

U.S. Cl. 166—254 **2 Claims**

In a well in which a movement of earth formation material is apt to collapse a casing, an improved bond between the casing and the sur-rounding earth formations is formed by a syntactic epoxy resin foam that collapses progressively and has a compressive strength slightly less than that of the casing.

3,782,467

METHOD FOR REDUCING GAS PRODUCTION

James E. Hessert, Bartlesville, Okla., assignor to Phillips Petroleum Company, Bartlesville, Okla.

Continuation-in-part of Ser. No. 244,223, April 14, 1972, abandoned. This application July 26, 1972, Ser. No. 275,440

Int. Cl. E21b *33/138, 43/24*

U.S. Cl. 166—261 **7 Claims**

A method for reducing gas permeability in a hydrocarbon bearing subterranean formation having zones of gas permeability and at least two penetrating well bores, comprising the injection into said zones of a basic pH aqueous-thickener slug containing an acidic responsive crosslinking system and acidifying the aqueous-thickener slug with carbon dioxide for plugging in situ the zones of gas permeability.

3,782,468

GEOTHERMAL HOT WATER RECOVERY PROCESS AND SYSTEM

James T. Kuwada, Richmond, Calif., assignor to Rogers Engineering Co., Inc., San Francisco, Calif.

Filed Sept. 20, 1971, Ser. No. 182,054

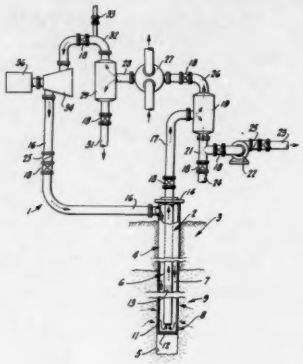
Int. Cl. E21b *43/00*

U.S. Cl. 166—267 **8 Claims**

An improved process and system for recovering high temperature hot water from a geothermal supply. A well casing assembly is sunk to position an apertured end portion of a casing in proximity to an underground hot water supply with an apertured end portion of a centrally disposed conduit within the casing adjacent the apertured casing end. By reducing the pressure at the well head, flashing of the hot water to steam occurs to elevate a two phase mixture of steam and hot water through the casing assembly. Such flashing is accompanied by the evolution of substantially non-condensible gases, including carbon dioxide. Such gases are separated with the steam from the elevated hot water, the latter being withdrawn from the system for its intended use, such as the generation of electric

power. The separated steam and gases are heat exchanged to condense the steam and to withdraw useful heat from the gases, following which the gases are compressed and recycled into contact with the underground hot water supply to assist in elevating additional hot water.

The carbon dioxide containing gases are effective in countering the problems normally created when geothermal hot water is allowed to flash to steam, namely the formation of system clogging deposits, of which calcium carbonate and



magnesium hydroxide are typical, within the well and related apparatus. The presence of carbon dioxide in the recycled gases during the steam flashing maintains chemical equilibrium in the system to prevent formation of such deposits.

Thus, without utilizing mechanical or other pumping devices within the well, recovery of a substantially constant stream of geothermal hot water from a deep underground well may be effected without attendant precipitation of clogging chemical compounds commonly encountered when geothermal hot water is elevated utilizing a steam flashing procedure.

3,782,469

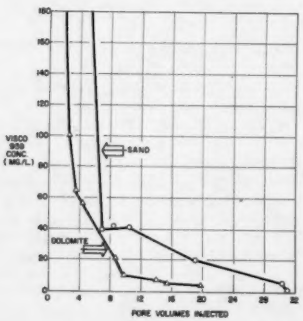
FORMATION AND WELLBORE SCALE PREVENTION

Richard S. Fulford, Tulsa, Okla., assignor to Cities Service Oil Company, Tulsa, Okla.

Continuation of Ser. No. 63,193, Aug. 11, 1970, abandoned. This application May 25, 1972, Ser. No. 256,722

Int. Cl. E21b *43/26*

U.S. Cl. 166—279 **8 Claims**



Disclosed herein is a method for the reduction of the scale deposition in the formation and fractures about a producing wellbore. In particular, gypsum scale deposition is avoided by the addition of scale preventative to an absorbent which may be used as a propping agent and positioned in hydraulically created fractures within the formation. Subsequent production from the formation, through the fractures, slowly bleeds the gypsum scale preventative into the produced water and thereby prevents gypsum scale deposition in the wellbore.

3,782,470

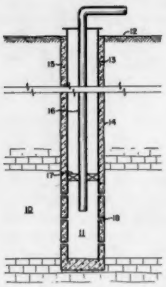
THERMAL OIL RECOVERY TECHNIQUE

Robert C. West, and Walter L. Penberthy, Jr., both of Houston, Tex., assignors to Esso Production Research Company, Houston, Tex.

Continuation-in-part of Ser. No. 59,611, July 30, 1970, abandoned. This application Aug. 23, 1972, Ser. No. 283,122

Int. Cl. E21b *43/24*

U.S. Cl. 166—303 **10 Claims**



A thermal method for recovering oil from a subterranean formation. Steam is injected by means of a well into the formation to heat the oil and to lower its viscosity. Following the steam injection, a noncondensing gas which is substantially free of oxidizing components is introduced into the steam injection system and is then injected into the formation at the same location at which the steam was injected. The temperature of the gas upon introduction into the steam injection system is no higher than substantially ambient temperature. After the gas has been injected into the formation, the heated oil is withdrawn from the formation by means of the well.

3,782,471

DISPERSING CELLULAR-MICRO-ORGANISMS WITH CHELATING AQUEOUS ALKALINE SURFACTANT SYSTEMS

Ted S. Felmann, Phoenix, Ariz.; Hollis B. Carlile, Jr., Hacienda Heights, and Charles F. Blankenhorn, La Habra, both of Calif., assignors to Shell Oil Company, Houston, Tex.

Continuation-in-part of Ser. No. 144,275, May 17, 1971, abandoned. This application Feb. 9, 1972, Ser. No. 224,932

Int. Cl. E21b *43/27*

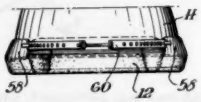
U.S. Cl. 166—307 **8 Claims**

A contaminent composed of cellular micro-organism materials is dissolved or dispersed by contacting it with an aqueous solution containing at least one surfactant adapted to disperse the outer wall layers of micro-organism cells, at least one chelating agent adapted to disperse the inner wall layers of micro-organism cells and an alkali metal hydroxide adapted to enhance the dispersing action.

3,782,472
STEAM INJECTION OF OIL FORMATIONS
Charles P. Siess, Jr., St. Louis, Mo., assignor to Petrolite Corporation, Wilmington, Del.
Filed Mar. 20, 1967, Ser. No. 624,133
Int. Cl. E21b 43/24
U.S. Cl. 166—303 12 Claims

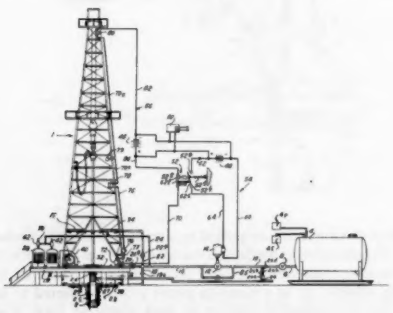
In the process of stimulating the production of petroleum from underground formations by treating the formation with steam, including steam flooding and the "huff and puff" steam soak techniques, the improvement which is characterized by the use of demulsifiers in conjunction with steam.

3,782,473
HORSESHOE
Dudley W. C. Spencer, 619 Shipley Rd., Wilmington, Del.
Continuation-in-part of Ser. No. 71,121, Sept. 10, 1970, Pat. No. 3,664,428. This application May 12, 1972, Ser. No. 252,546
Int. Cl. A01l 1/00
U.S. Cl. 168—4 7 Claims



A horseshoe comprises a U-shaped shoe unit which is secured to the hoof by thermo-adhesive means and which includes heat conductive metal means in contact with the adhesive means for curing the adhesive when the metal is heated.

3,782,474
METHOD OF PUTTING OUT OIL WELL FIRES
Ben W. Wiseman, Jr., 303 Wall Towers, West, Midland, Tex.
Continuation-in-part of Ser. No. 793,692, Jan. 24, 1969, Pat. No. 3,620,299. This application Nov. 4, 1971, Ser. No. 195,713
Int. Cl. A62c 3/02
U.S. Cl. 169—2 R 15 Claims

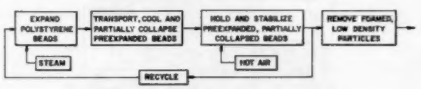


A method of putting out oilwell fires comprising the steps of providing carbon dioxide in liquid state at a well site and releasing the carbon dioxide to ambient atmosphere, allowing expansion to a gaseous state, to displace oxygen required for combustion and to dilute the combustible fuel for increasing the temperature required for combustion.

3,782,475
FIRE EXTINGUISHER
Verna Grace Schmidt, 323 N. Walnut St., Starke, Fla.
Filed Oct. 21, 1971, Ser. No. 191,552
Int. Cl. A62c 7/00
U.S. Cl. 169—1 R 12 Claims

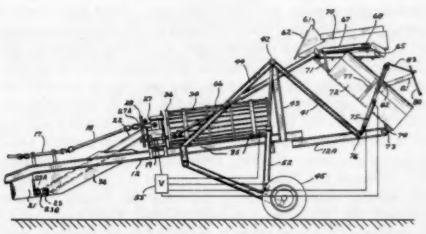
The disclosure herein pertains to the fabrication and use of articles for extinguishing fires. More particularly, the disclosure, in its preferred embodiment, pertains to flexible sheeted structures having fire extinguishing material enclosed between sheets of heat-rupturable material and fire-proof or fire-resistant material; alternative embodiments are also disclosed. Such fire extinguisher structures are particularly suitable for small fires and may be fabricated into easily accessible household articles such as towels, tidys, blankets, tapestries, draperies, etc.

3,782,476
FLAME PROOFING METHOD
Irby H. Leach, 2094 Emerson, Napa, Calif.
Filed June 7, 1972, Ser. No. 260,619
Int. Cl. A62c 1/12
U.S. Cl. 169—1 A 16 Claims



Expanded, foamed plastic such as foamed plastic beads having a minimum density of 0.5 pounds per cubic foot and preferably of 0.4 pounds per cubic foot or less are fire extinguishing or retard the propagation of flames even though constructed of an otherwise flammable substance. The low density foamed material can be applied to exterior surfaces of objects, can be intermixed with flammable material or can be filled inside soft or hard shells to provide flame proofing. Flames can be retarded or extinguished by placing the low density foamed plastic material on burning objects.

3,782,477
ROCK PICKER WITH HIGH LIFT DUMP BOX
Harley D. Fahrenholz, Box 278, Clarissa, Minn.
Filed Mar. 2, 1972, Ser. No. 231,245
Int. Cl. A01d 17/16
U.S. Cl. 171—12 7 Claims



A rock picker utilizing a tumbler member for separating the dirt from the rocks being picked, and including a unitary

frame with a storage dump box into which the rocks are delivered mounted on the frame. The rocks can be dumped from the storage box into a truck or the like. The frame is mounted on a support that permits directly raising the frame to a dumping position. The support is made so the support balance line of the rock picker does not shift significantly even when the frame is raised a substantial amount.

3,782,478

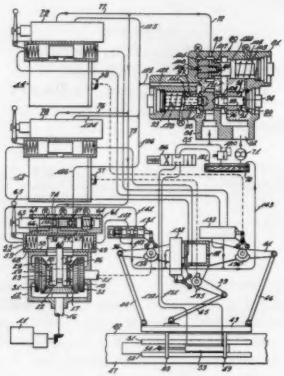
FLUID CONTROL SYSTEM FOR EARTHWORKING APPARATUS INCLUDING AUTOMATIC PRESSURE REGULATING MEANS

Ferris L. McRay, Springfield, Ill., assignor to Allis-Chalmers Corporation, Milwaukee, Wis.

Division of Ser. No. 140,698, May 6, 1971. This application Mar. 2, 1973, Ser. No. 337,532

Int. Cl. E02f *3/76*

U.S. Cl. 172—4.5 **2 Claims**



The control box jaw clutches of a motor grader are hydraulically operated through parallel connected closed center control valves. An automatic pressure regulator is interposed between the source of pressurized fluid and the parallel connected inputs to the control valves. When all the control valves are in neutral, an unloading valve in the pressure regulator bypasses fluid flow from the pressure source to the reservoir at a moderate pressure. When any one of the control valves is moved to an operating position, the unloading valve is automatically conditioned to establish a higher operating pressure. The higher operating pressure is established by hydraulically biasing the unloading valve fluid flow control element by pressurized fluid delivered to the jaw clutch actuators by the associated control valve. Upon the controlled apparatus moving to a limit position, a dumping valve is opened, thereby reducing the pressure to the jaw clutch actuator allowing the centering spring in the jaw clutch mechanism to return it to neutral position even though its control valve is still in an operating position. The reduction in control valve operating pressure, resulting from opening of the dumping valve, reduces the fluid pressure bias on the unloading valve flow control element thereby reducing the bypass pressure level until the 100 psi level is re-established. Fluid bypassed by the unloading valve element is delivered to an auxiliary control valve circuit having a high pressure relief valve. A pressure limiting valve downstream of the unloading valve prevents the jaw clutch control circuits from being subjected to more than an intermediate pressure.

3,782,479

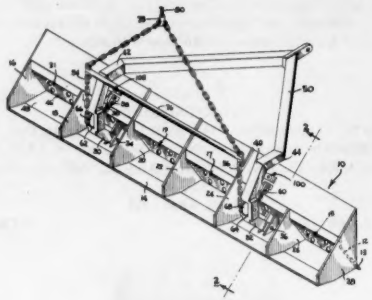
BAR SCRAPER AND MUD DRAG

Mervin S. Moak, 6189 N. Libby, Paradise, Calif.

Filed June 29, 1971, Ser. No. 157,924

Int. Cl. E02f *3/60*

U.S. Cl. 172—26.5 **24 Claims**



A bar scraper and mud drag particularly adpated to be used for scraping, cleaning and filling the bed of a water course having a heavy press plate member with a scraping and cutting bar on its underside and control cables or chains, including a drag line and lifting line, for tilting the apparatus onto its scraper and cutting bar.

3,782,480

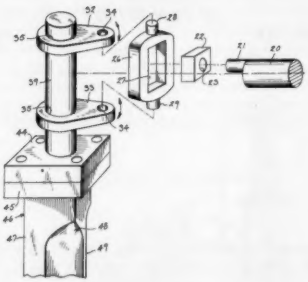
SLIT TRENCH FORMING APPARATUSES

Calvin O. Schmahl, Chilton, Wis., assignor to Arps Corporation, New Holstein, Wis.

Filed Nov. 15, 1971, Ser. No. 198,852

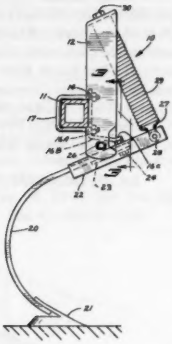
Int. Cl. A01b *35/00*

U.S. Cl. 172—110 **14 Claims**



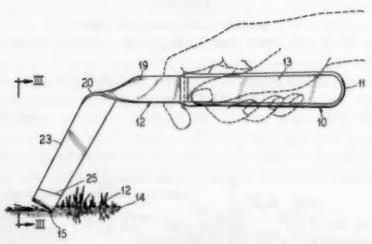
A device adapted to be pulled by a tractor or the like including a trench-forming blade and featuring a novel blade driving mechanism connectible to the power take-off shaft of the pulling vehicle, or to a separate prime mover, adapted to impart lateral oscillating motion to said blade to form a slit trench in the earth into which underground cables or pipes, etc. can be laid by a guide device associated with said apparatus, said novel drive mechanism producing a minimum of vibrations of the type characterizing conventional trench formers, which vibrations cause wear and rapid deterioration not only of the structural components of the apparatus, but which constant vibrations are detrimental to the human operator as well as to the cables or pipes being installed.

3,782,481
FIELD CULTIVATOR TOOL SUPPORT
Sherman H. Quanbeck, 705 S. 6th St., Breckenridge, Minn.
Filed Dec. 29, 1971, Ser. No. 213,670
Int. Cl. A01b *65/00*
U.S. Cl. 172—265 **5 Claims**



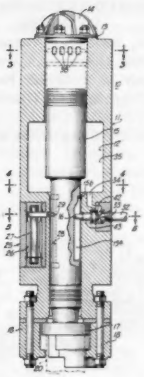
An earth working tool support for use with large field cultivators comprising a mounting member adapted to be mounted onto the provided frame of a field cultivator. A shank holder is pivotally mounted to a support bracket and resilient means are provided for holding the shank holder and tool into working position. The shank holder is positioned for maximum clearance in its operating position. The support bracket is held securely on the frame of the field cultivator with only one U bolt, and the bracket includes integral stop means to retain the shank support in a normal operating position.

3,782,482
PISTOL-GRIP GARDEN HOE
Eugene Boyd Miller, 14515 S. Michigan Ave., Riverdale, Ill.
Filed May 24, 1972, Ser. No. 256,393
Int. Cl. A01b *1/08*
U.S. Cl. 172—381 **6 Claims**



Hand-held hoe for use in cultivating and gardening particularly in close places difficult to cultivate with the average hoe or other cultivating tools. A generally pistol-grip handle affords a pulling and gripping surface for the index finger of the hand and a mounting for a flat blade support member offset from the center of the handle. The handle may be molded about the blade support member and is of a length to fit the average hand. The blade support member extends from the handle and is twisted at different curvatures adjacent the handle to offset the blade support member to extend to the outside of the handle and to add rigidity to the blade support member to accommodate the use of a light gauge steel. Offsetting of the blade member provides a leg portion extending angularly downwardly from the handle in a plane generally parallel to the plane of the handle, which terminates into a right-angled hoeing blade normally inclined at a cutting angle with respect to the ground when hoeing or cultivating, and sharpened along its ground engaging edge. The outer end of the hoeing blade is upturned to provide strength to the blade and prevent twisting thereof during a hoeing or cultivating operation and also to aid in cutting weeds or plants.

3,782,483
PERCUSSION HAMMER
George C. Wandell, Soddy, Tenn., assignor to Vulcan Iron Works Inc., Chattanooga, Tenn.
Filed Nov. 15, 1971, Ser. No. 198,923
Int. Cl. E02d *7/10*
U.S. Cl. 173—15 **3 Claims**



There is provided a percussion hammer of the type used for driving piles and the like, and including a differential diameter piston defining a ram reciprocally positioned within a differential diameter cylinder. An anvil is mounted for limited movement in one end of the cylinder positioned in the path of the ram to receive percussion blows therefrom. Main valve means are provided for controlling the working fluid so as to cycle the ram through power and return strokes. Safety means are provided for shutting off the supply of working fluid rendering the ram inoperative when the percussion hammer is out of engagement with a pile.

3,782,484
TOOL POSITIONING EXTENSIBLE BOOM
Dennis Douglas Martin, Wigan, England, assignor to Dobson Park Industries Limited, Nottingham, Nottinghamshire, England
Filed July 18, 1972, Ser. No. 272,954
Claims priority, application Great Britain, Aug. 4, 1971, 36622/71
Int. Cl. E21c *11/00*
U.S. Cl. 173—43 **18 Claims**

An extensible boom, particularly for mounting on a mobile rock breaking or mining machine, comprises an extensible member mounted for rotation about an axis extending in the direction of its length, a non-rotatable extensible member operative to impart extension to said rotatable member of the boom, means for extending the non-rotatable extensible member of the boom and means on said rotatable member of the boom for mounting a rock breaking or other tool thereon

so that said tool operates on an axis which is different to said axis of the rotatable member of the boom and is movable relatively thereto. In one preferred arrangement the tool is supported on a tiltable turntable pivotally mounted on the forward end of the boom.

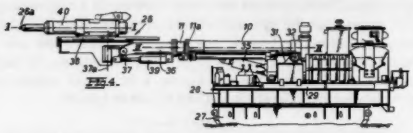


FIG. 4.

3,782,485

WEIGHING BALANCES WITH PARALLELOGRAM SUPPORT FORMED BY TWO PARALLEL GUIDE MEMBERS

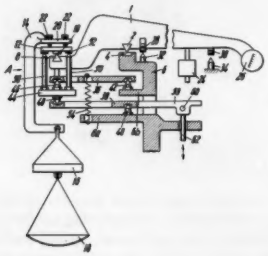
Ludwig Weickhardt, Bovenden, Germany, assignor to Sartorius-Werke GmbH, Gottingen, Germany

Filed July 24, 1972, Ser. No. 274,802

Claims priority, application Germany, Aug. 4, 1971, 2138902

Int. Cl. G01g *21/24, 23/02*

U.S. Cl. 177—157 **4 Claims**



A weighing balance includes an unsymmetrical beam, a frame having a bearing surface, a beam-supporting knife edge located on the beam and engaging the bearing surface, a load-supporting knife edge carried by the beam at a spaced distance from the beam-supporting knife edge, a load suspension member supportable by the load-supporting knife edge during a weighing operation, the load suspension member being liftable from the load-supporting knife edge to stop the weighing operation, counterweight means carried by the beam, the beam, in condition when the load suspension member is lifted from the load-supporting knife edge, being tiltable under action of the counterweight to a stop position wherein the beam-supporting knife edge is raised from the bearing surface, combined with the weighing balance are means for arcuately stopping the weighing operation by lifting the load suspension member from the load-supporting knife edge and for arcuately starting the weighing operation by permitting the load suspension member to be supported by the load-supporting knife edge, the arcuate stopping and starting means including a parallelogram support formed by two parallel guide members, lifting means mounted at one end of the guide members and engageable with the load suspension member, the guide members having another end thereof mounted on the frame, each of the guide members having an effective length approximately equal to the distance between the beam-supporting and the load-supporting knife edges, the guide members of the parallelogram support maintaining parallelism with an imaginary line extending between the knife edge in condition when the lifting pins engage the load suspension member and the guide members tilt with the beam.

3,782,486

MEASURING TRANSIENT LOADS

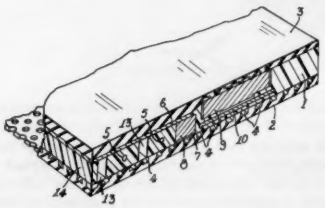
Stephanus Hendrik Kuhn; Charles Richard Freeme, both of Everhardus; Rombout Beulink, and John Edgar Baron Basson, both of Transvaal, all of South Africa, assignors to South African Inventions Development Corporation

Continuation-in-part of Ser. No. 846,909, Aug. 1, 1969, abandoned. This application May 12, 1971, Ser. No. 142,717

Claims priority, application South Africa, Aug. 1, 1968, 68/4975; Mar. 14, 1969, 69/1840

Int. Cl. G01g *3/14*

U.S. Cl. 177—210 **7 Claims**



A device for sensing and measuring a transient load, such as a load imposed by at least one wheel on an axle of a passing vehicle, comprising a flexible and resilient mat formed of a dielectric and elastomeric material and adapted to be engaged by the load, and at least two vertically spaced capacitor electrodes embedded in and extending over substantially the entire operative area of the mat. The electrodes are connected to a device for detecting variations in the electrode spacing owing to transient loads. Void areas are located in the body of the mat to provide for mat deformation that is linearly proportional to the magnitude of the applied load. Preferably, the void areas are uniformly distributed in the mat and extend substantially from one of the electrodes to the other electrode.

3,782,487

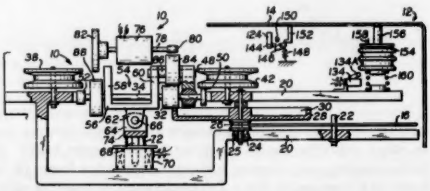
WEIGHT ANNUNCIATOR

Morris W. Leen, 2911 Saddle Ridge Dr., Yorktown Heights, N.Y.

Filed June 22, 1972, Ser. No. 265,211

Int. Cl. G01g *23/00*

U.S. Cl. 177—245 **21 Claims**



A weight annunciator for announcing the weight of a load placed on a weighing machine of the type having a platform adapted to be moved to a loaded position which is related to

the value of the weight placed on the platform. A record having weight announcement segments sequentially recorded thereon is provided and is adapted to move past a reading station which includes a reading device for converting the weight announcement segments into audible information. A moving arrangement responsive to the movement of the platform to the loaded position is adapted to move the record to a position wherein the weight announcement segment associated with the value of the weight on the platform is positioned at the reading station. Thereafter, relative movement between the reading device and the record is effected whereby the weight announcement positioned at the reading station is read out.

3,782,488

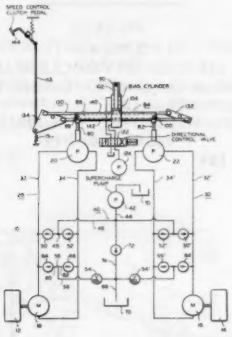
CONTROL SYSTEM FOR DIFFERENTIAL HYDROSTATIC STEERING

William A. Williamson, Niles, Mich., assignor to Clark Equipment Company, Buchanan, Mich.

Filed Mar. 10, 1972, Ser. No. 233,495

Int. Cl. B62d *11/04*

U.S. Cl. 180—6.48 **12 Claims**



A steering control system for a vehicle having a manual steering means such as a steering wheel and a dual path hydrostatic drive with separate motors for two steerable wheels, and separate variable output pumps for the motors in which a linkage interconnects the two motors. A pair of bars, preferably forming part of a parallelogram, controls and limits the movement of the linkage either in the same direction or in an angular direction to equalize the output of the motors or to vary the output of the motors to steer the vehicle. The movement of the interconnecting linkage is controlled by the steering means and the position of the two bars is preferably controlled by a foot pedal. Forward and reverse operation of the vehicle are obtained by shifting the linkage toward one or the other of the parallel members through the use of a resilient means, preferably a hydraulic motor. The present control system is particularly adapted for lift trucks in which the two front wheels are driven by the motors and a caster or casters are used for the rear wheels.

3,782,489

HYDROSTATIC TRANSMISSION CONTROL WITH HYDRAULIC FOLLOW-UP

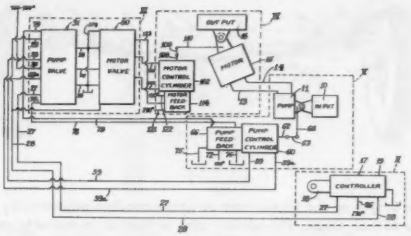
Charles A. H. Ruhl, Wheaton; Edward Meyer, North Riverside, and Probir K. Chatterjea, Des Plaines, all of Ill., assignors to International Harvester Company, Chicago, Ill.

Division of Ser. No. 97,899, Dec. 14, 1970, Pat. No. 3,693,503. This application May 19, 1972, Ser. No. 255,288

Int. Cl. B62d *11/04*

U.S. Cl. 180—6.48 **2 Claims**

A hydraulic follow-up for use with a hydraulic system placed between a rotating input member and a rotating output member. The hydraulic system is a hydrostatic transmission for driving a tractor, and comprises a hydrostatic pump and a hydrostatic motor driven by the pump. When the hydrostatic



pump is angularly shifted with respect to the input member, the shifting is controlled by the hydraulic follow-up, which also shifts the motor in relation to the output member.

3,782,490

STEERING ARRANGEMENT FOR VEHICLES, ESPECIALLY MOTOR VEHICLES, WITH A STEERING SERVO MECHANISM

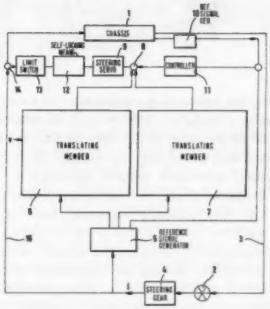
Harald Schimkat, Flechtorf, Germany, assignor to Volkswagenwerk Aktiengesellschaft, Wolfsburg, Germany

Filed Aug. 4, 1971, Ser. No. 168,917

Claims priority, application Germany, Aug. 27, 1970, 2042428

Int. Cl. B62d *5/04*

U.S. Cl. 180—79.1 **12 Claims**



A steering arrangement for vehicles, especially for motor vehicles comprising a steering gear and a steering servo mechanism, and means coupled between the steering gear and the servo mechanism for superimposing a further translation ratio independent from the velocity of the vehicle to the steering translation ratio of the steering gear without changing the steering momentum.

3,782,491

POWER STEERING SYSTEM FOR ADJUSTABLE TRACK VEHICLES

Edward J. Herbenar, Detroit, Mich., assignor to TRW Inc., Cleveland, Ohio

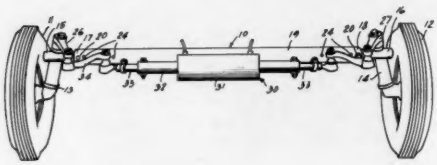
Filed Feb. 22, 1972, Ser. No. 227,770

Int. Cl. B62d *5/10, 17/00*

U.S. Cl. 180—79.2 R **3 Claims**

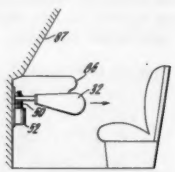
A power steering system for adjustable track vehicles wherein a double-ended power cylinder moves a piston which

carries a hollow power rod. The power rod in turn receives end portions of tie rod socket arms telescopically. The socket arms are attachable to the power rod at various points along



the length of the socket arm to accommodate adjustability in the vehicle track. The socket arms terminate in movable stud joints which are connected to tie rod arms which in turn are connected to the wheel steering arm.

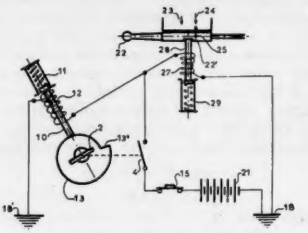
3,782,492
MOTORIZED RETRACTABLE PADDED CUSHION
Jesse R. Hollins, 1 Chester Dr., Great Neck, N.Y.
Filed Oct. 15, 1971, Ser. No. 189,650
Int. Cl. B60r *21/10*
U.S. Cl. 180—82 C **5 Claims**



An assembly for protecting a passenger of a vehicle. The assembly includes a padded cushion and electrically activated means coupled to the cushion for moving the cushion toward a desired position and retracting the cushion from that position. The electrically activated means includes a motor gear meshed to a threaded shaft. The activated means also includes a threaded nut mechanically engaging the threaded shaft, which nut is attached to the frame of the cushion. Electric circuits are provided for activating the motor so as to turn the shaft in one direction causing the cushion to move to an extended horizontal position, and to turn the shaft in the opposite direction causing the cushion to retract from the extended horizontal position.

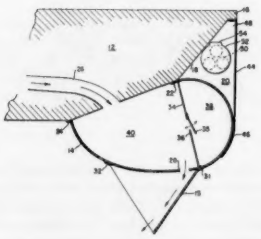
3,782,493
ANTI-THEFT DEVICES
Paul Lipschutz, Croissy-Sur-Seine, and Jean Leroy, Saint-Cyr-L Ecole, both of France, assignors to Societe d'Exploitation des Brevets NEIMAN, Neuilly Seine, France
Continuation-in-part of Ser. No. 47,706, June 19, 1970, Pat. No. 3,688,861. This application Sept. 21, 1971, Ser. No. 182,385
Claims priority, application France, Sept. 25, 1970, 7034733; Sept. 25, 1970, 7034734
Int. Cl. B60r *25/04*
U.S. Cl. 180—114 **4 Claims**

A lock having a bolt engageable with a control element of an automotive vehicle and including key-operated means having a first position in which the bolt is engaged with the control element and a second position in which the bolt is disengaged therefrom, means for blocking movement of the key-operated



means between both positions, and comprising an electromagnet energizable by an electrical circuit of the automotive vehicle for operating said blocking means.

3,782,494
AIR CUSHION VEHICLE SEAL
Anthony Yelverton Simpson, New Orleans, La., assignor to Textron Inc., Providence, R.I.
Filed May 25, 1972, Ser. No. 256,653
Int. Cl. B60v *1/16*
U.S. Cl. 180—124 **10 Claims**

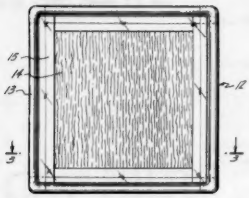


A system for bracing/stiffening any side section, such as the bow section of an air cushion vehicle seal of the inflated bag or trunk type against "plow-in" or "tuck-under" tendencies. The system provides (without undue outward extension of the vehicle deck) a "third stage" extension to the conventional "two-stage stiffness" bag type air cushion seal, whereby a new and improved "three-stage stiffness" seal system is provided. Also, the device of the invention incidentally operates as a novel pneumatic bumper device protecting the vehicle hard structure against damage when docking or the like.

3,782,495
CEILING TILE
Martin Nassof, 2608 Rockville Ctr. Pky., Oceanside, N.Y.
Filed June 8, 1972, Ser. No. 260,852
Int. Cl. E04b *1/82, 5/52*
U.S. Cl. 181—33 G **7 Claims**

A substantially square frame made of wire is covered on one side or both sides with a skin of metal foil or thin metal sheet, preferably aluminum, or thin plastic film. The skin is secured on the frame by adhesive means, such as heat sealing. The sur-

face of the skin may be treated by wrinkling, embossing, perforating, printing, coloring or other suitable decorating process. The thus obtained lightweight tile is usable for



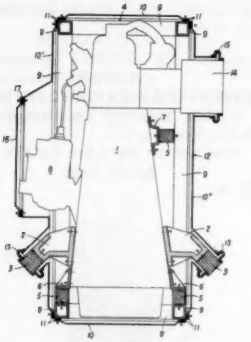
decorating ceilings, either suspended below or in conjunction with sound absorbing materials such as glass fiber or mineral wool.

3,782,496

INTERNAL COMBUSTION ENGINE IN A SOUND-PROOF CASING

Gerhard Thien; Othmar Skatsche, and Heinz Fachbach, all of Graz, Austria, assignors to Hans List, Graz, Austria

Filed Sept. 27, 1972, Ser. No. 292,802
Int. Cl. F02b *77/00*
U.S. Cl. 181—33 K **10 Claims**



An internal combustion engine in a sound-proof casing supported by means of sound-proofing stays extending through the sound-absorbing casing upon a foundation, to which a supporting frame designed as a rigid framework is attached by means of sound-proofing members, the wall members forming the sound-proofing casing being attached to said supporting frame.

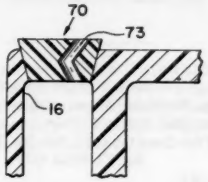
3,782,497

SOUND MUFFLER FOR DRAINAGE DEVICE

Robert E. Bidwell, Melville, and Leonard D. Kurtz, Woodmere, both of N.Y., assignors to Deknatel, Inc., Queens Village, N.Y.

Filed Oct. 18, 1972, Ser. No. 298,505
Int. Cl. E04b ; A61m
U.S. Cl. 181—33 **9 Claims**

Drainage device of the type shown in U.S. Pat. Nos. 3,363,626; 3,363,627 and 3,683,913. For use with vacuum, the device has three chambers: collection, seal, and manometer. In operation, a gas bubbles through a body of liquid in the manometer chamber and this is sometimes quite noisy. In accordance with the invention, the opening of the manometer chamber which is open to atmosphere is closed with a sound



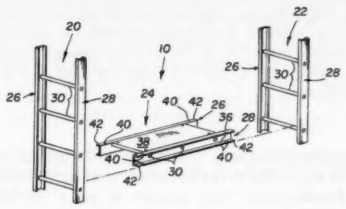
muffling member which does not substantially impede gas flow through the opening. The sound muffling member is preferably a member having a tortuous aperture extending therethrough, the size of the aperture being sufficient to permit the free flow of gas.

3,782,498

IMPROVED SCAFFOLD

Robert K. Gleisen, 825 Calalpa Ave., Teaneck, N.J.

Filed Aug. 21, 1972, Ser. No. 282,480
Int. Cl. E04g *1/30*
U.S. Cl. 182—119 **3 Claims**



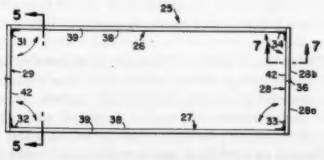
A scaffold capable of being erected for use on a level surface or on multi-level surfaces (such as a staircase) and constructed from three components, which each advantageously use U-shaped sides. Interconnection of the components, preparatory to erection of the scaffold, is achieved by orienting the U shapes in facing relation and obtaining a locking accommodation of one within the other. In unassembled condition, two of the components function as ladders.

3,782,499

TOE BOARD ASSEMBLY FOR SCAFFOLD PLATFORMS

Robert E. Fisher, Larkspur, Calif., assignor to Up-Right, Inc., Berkeley, Calif.

Filed Dec. 7, 1972, Ser. No. 313,122
Int. Cl. E04g *5/00*
U.S. Cl. 182—230 **15 Claims**



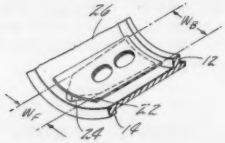
A toe board assembly for surrounding and extending upwardly from the perimeter of a flat scaffold platform, the toe

board assembly having side and end girder members hinged together to fold into a small compact package and to unfold into an open rectangular frame, the toe board assembly having platform-engaging surfaces to prevent longitudinal, transverse or vertical movement of the toe board assembly relative to the scaffold and platform when assembled thereto, the toe board being easily attachable and detachable without the use of tools.

3,782,500
LUBRICATION MEANS

Philip Young, Westfield, Mass., assignor to United Aircraft Corporation, East Hartford, Conn.

Filed June 16, 1972, Ser. No. 263,492
Int. Cl. F16n 7/12
U.S. Cl. 184—64 **3 Claims**

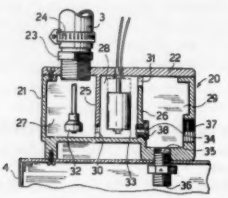


An elongated generally T-shaped member forming a gutter is disposed on the bottom inner wall of a sleeve like element horizontally disposed adjacent a bearing of a rotating machinery so that lubricant admitted into the sleeve migrates to the T-shaped member judiciously tapered for increasing the hydrostatic head of the lubricant for directing it into the bearing instead of being returned to the reservoir as was the case heretofore.

3,782,501
LUBRICATING-OIL CONTROL DEVICE FOR USE IN MACHINES, FOR INSTANCE MACHINE TOOLS

Elio Pagella, Ivrea, Italy, assignor to Ing. C. Olivetti & C., S.p.A., Turin, Italy

Filed Feb. 22, 1971, Ser. No. 117,261
Claims priority, application Italy, Mar. 5, 1970, 67736 A/70
Int. Cl. F01m 11/12
U.S. Cl. 184—6.4 **4 Claims**

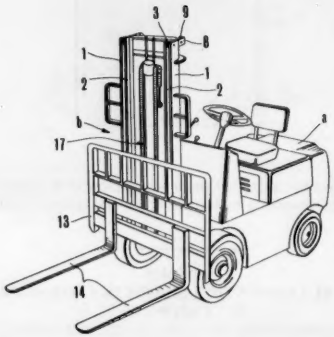


A machine control device for arresting the operation of a machine in response to an insufficient rate of lubricant flow in the machine lubrication system. A chamber interposed in the lubricant return circuit to the reservoir comprises a float for sensing the level of lubricant therein, an upper discharge port, and a lower discharge port of such size as to allow a flow equal to that necessary in the lubrication system to allow the machine to complete its cycle. A signal responsive to a predetermined position of the float announces the condition of insufficient rate of flow, and provides an input to an AND gate. The other input to the AND gate is provided by the machine control system at the end of a cycle, whereby the arresting of machine operation thereupon occurs.

3,782,502
MAIN POLE OF A FORK LIFT TRUCK

Motori Kobayashi, Uji; Masaoki Sakaguchi, Kusesa Tononishi, and Masahiro Maeda, Uji, all of Japan, assignors to Nissan Shatai Co., Ltd., Kanagawa-ken, Japan

Filed Aug. 30, 1971, Ser. No. 176,057
Int. Cl. B66b 7/02
U.S. Cl. 187—9 **3 Claims**

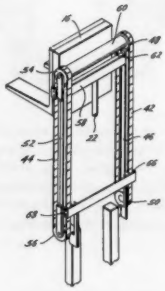


A fork lift mainpole comprises inner and outer-most elements on each side, the inner element comprising a U channel having added a shouldered rear flange engaging rollers attached to the outer masts in which the latter rollers are made adjustable by eccentric mountings for immediate and accurate adjustment to avoid shaking.

3,782,503
MAST STABILIZER FOR LIFT TRUCKS

Stuart W. Sinclair, Houston, Tex., assignor to Anderson, Clayton & Co., Houston, Tex.

Filed Dec. 14, 1972, Ser. No. 315,218
Int. Cl. B66b
U.S. Cl. 187—9 **4 Claims**



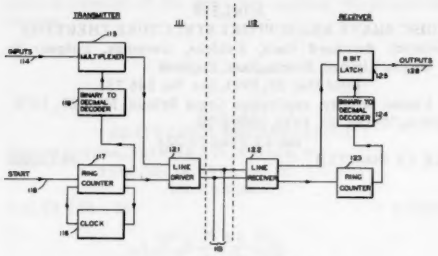
A stabilizer for reducing side-tilting moments in a lift truck mast by overcoming the moments imposed by side loads on the mast. An endless chain loop tauntily positioned on either side of the mast by a separating column with a sprocket at each end. One side of the chains is connected to the load bearing structure and the other side of the chains is anchored. One of the sprockets engaging each of the chains are connected together by a common torque shaft whereby any side loads on the carriage is transmitted to the chains and the torque shaft to compensate for the side loads.

3,782,504

MULTIPLEX SYSTEM FOR ELEVATOR CONTROL

Joseph F. Billmaier, and Gordon P. Sprague, both of Toledo, Ohio, assignors to Reliance Electric Company, Euclid, Ohio

Filed Dec. 14, 1972, Ser. No. 314,918
Int. Cl. B66b 3/00
U.S. Cl. 187—29 R 34 Claims



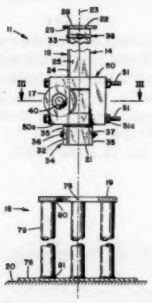
A system of transmitting control and indicator signals between elements of an elevator system such as between a car movable along a hatch-way and car control or supervisory equipment wherein the signals are coded and transmitted in multiplexed form over a single transmission line. A two station system between a car and a fixed location is illustrated with a transmitter and receiver at each station. The coded signals are time sequenced so that all signals are considered cyclically.

3,782,505

BRAKING DEVICE

Homer T. Armstrong, Arlington, Tex., assignor to LTV Aerospace Corporation, Dallas, Tex.

Filed Feb. 25, 1972, Ser. No. 229,464
Int. Cl. F16f 7/12
U.S. Cl. 188—1 C 19 Claims



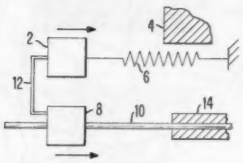
A device for braking and dissipating the kinetic energy of a linearly moving object. The device employs an elongated probe rigidly attached to the object to be braked, the probe having at least one cutting edge. A strip of sheet material is removably mounted on the probe and over the probe's cutting edge. Means for holding and positioning a shearing member is slidingly mounted on the probe with the strip of sheet material between the probe and the shearing member. The shearing member cooperates with the probe's cutting edge to shear and deform the strip during movement of the shearing member relative to the probe and strip. Such movement of the shearing member is effected by the passage of the probe through an open end of a fixed structure, which open end is larger than the combined cross-sectional dimensions of the probe and strip of sheet material, but smaller than the outside dimension of the means for holding and positioning the shearing member.

3,782,506

MECHANICAL MOTION RETARDING MEANS

James Clifford Yarrington, Endicott, N.Y., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed May 30, 1972, Ser. No. 257,592
Int. Cl. F16f 7/10
U.S. Cl. 188—1 B 9 Claims



Inertial retardation of mechanical motion is obtained by coupling an inertia element, which is relatively massive, to a mechanical load device, by a unidirectional coupling means, arranged so that the load device is effectively connected to the inertia element during the time that its motion is to be retarded. At the termination of the motion of the load device, by some arresting means, the inertia element is effectively uncoupled, and the stored energy in the inertia element is suitably dissipated. The load device is accordingly stopped with an arresting impulse equal only to the reduced momentum of the load.

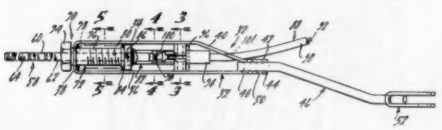
A preferred embodiment of the invention comprises a relatively massive flywheel coupled to the load device via an overrunning clutch.

3,782,507

BRAKE ACTUATED MECHANISM

Russell L. Shreve, 88 Linda, Troy, Mich.

Filed Mar. 29, 1971, Ser. No. 129,053
Int. Cl. B62l 3/02; F16c 1/14
U.S. Cl. 188—2 D 2 Claims



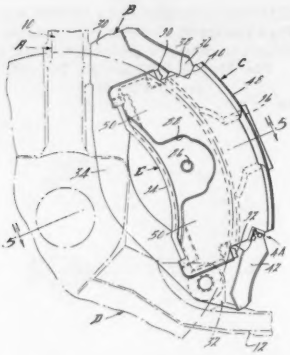
A brake actuating mechanism for two wheel vehicles such as motorcycles, motor bikes or the like having front and rear wheel brakes, the mechanism being operable to sequentially operate the front and rear brakes upon actuation of the vehicle brake pedal by the operator, whereby the rear wheel brake is applied prior to the front wheel brakes so as to prevent excessive front wheel braking relative to rear wheel braking, whereby instability and possible loss of vehicle control are minimized.

3,782,508

RELEASABLE CALIPER RETAINING MEANS FOR A DISC BRAKE

Harry E. Cook, Detroit, Mich., assignor to Ford Motor Company, Dearborn, Mich.

Filed July 2, 1971, Ser. No. 159,377
Int. Cl. F16d *55/224*
U.S. Cl. 188—73.3 **19 Claims**



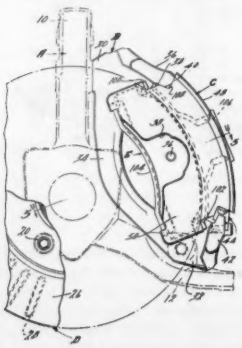
A disc brake for a motor vehicle having an anchor plate secured to a wheel support member. A brake caliper is slidably supported on the anchor plate and straddles a brake rotor. The caliper is constructed to urge a pair of brake shoes into engagement with the braking surfaces of the rotor. A unique releasable retaining means secures the caliper to the anchor. In the presently preferred embodiment, the unique releasable retaining means comprises a sheet metal spring clip and a V-shaped key interposed between the caliper and anchor.

3,782,509

CALIPER RETAINING MEANS FOR A MOTOR VEHICLE DISC BRAKE

Harry E. Cook, Detroit, and Francis L. Janosi, Dearborn Heights, both of Mich., assignors to Ford Motor Company, Dearborn, Mich.

Filed July 2, 1971, Ser. No. 159,379
Int. Cl. F16d *55/224*
U.S. Cl. 188—73.3 **17 Claims**



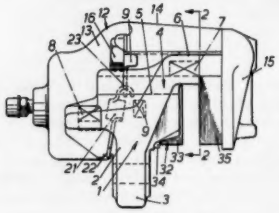
A disc brake for a motor vehicle having an anchor plate secured to a wheel support member. A brake caliper is slidably supported on the anchor plate and straddles a brake rotor. The caliper is constructed to urge a pair of brake shoes into engagement with the braking surfaces of the brake rotor. A unique releasable retaining means secures the caliper to the anchor. In the presently preferred embodiment, the unique releasable retaining means comprises a leaf spring and a channel-shaped key.

3,782,510

DISC BRAKE AND SUPPORT STRUCTURE THEREFOR

Heinrich Bernhard Rath, Koblenz, Germany, assignor to Girling Limited, Birmingham, England

Filed May 25, 1971, Ser. No. 146,751
Claims priority, application Great Britain, May 29, 1970, 25968/70; Oct. 22, 1970, 50096/70
Int. Cl. F16d *55/224*
U.S. Cl. 188—73.3 **18 Claims**



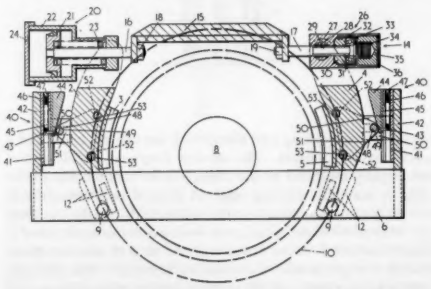
In a disc brake of the sliding caliper reaction type friction pad assemblies for engagement with opposite faces of a rotatable disc are located in the caliper which slides in a direction parallel with the axis of the disc between a pair of circumferentially spaced guiding members forming part of a stationary drag-taking member. The oppositely facing innermost faces of the guiding members are each formed with at least three axially and radially spaced co-planar surfaces upon which the caliper is directly slidably guided.

3,782,511

SELF-ADJUSTING BRAKES

Norman Leslie Cyril Parfitt, Ashby-de-la-Zouch, England, assignor to Coal Industry (Patents) Limited, London, England

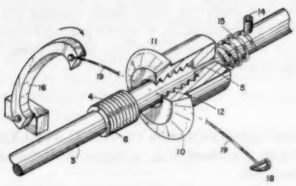
Filed June 22, 1972, Ser. No. 265,326
Claims priority, application Great Britain, June 29, 1971, 30,390/71; Nov. 5, 1971, 51,591/71
Int. Cl. F16d *49/20*
U.S. Cl. 188—75 **4 Claims**



Each wheel of the vehicle is provided with a self-adjusting brake unit having two interconnected shoes which are spring-

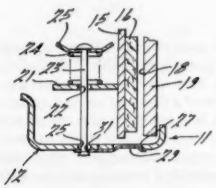
loaded into the applied position. Each brake unit has a hydraulic ram actuatable by pressure fluid to release the brake, means being provided for limiting the amount of shoe movement in the direction of brake release to a pre-selected amount. The shoes are interconnected by a threaded member along which one of the shoes is slidable and on which the said shoes is retained by nut which is urged along the threaded member to take up excess movement of the threaded member after movement of the shoes has reached the preselected amount.

3,782,512
SHAFT LOCK ARRANGEMENT
Samuel Gordon, 323 Park Ave., Elberon, N.J.
Filed July 20, 1972, Ser. No. 273,382
Int. Cl. B60t *7/12*
U.S. Cl. 188—134 **4 Claims**



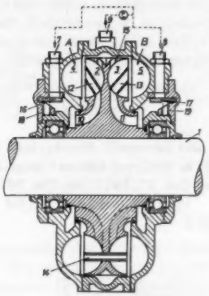
The specification describes a shaft lock employing a brake shoe mounted on a slidable sleeve which is, in turn, loosely mounted on the shaft. Counterrotation of the shaft causes a screw threaded portion thereof to engage a threaded portion of the sleeve thereby driving the sleeve along the shift into a fixed brake shoe mounted in proximity to said shaft.

3,782,513
INSPECTION HOLE COVER
William T. Birge, Plymouth, Mich., assignor to Kelsey-Hayes Company, Romulus, Mich.
Filed Nov. 4, 1971, Ser. No. 195,656
Int. Cl. F16d *66/02*
U.S. Cl. 188—206 R **2 Claims**



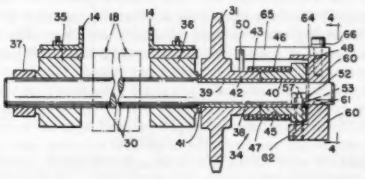
A drum brake assembly in which one of the brake members, such as the backing plate is formed with an inspection hole adjacent the lining of the brake shoe for visual inspection of the degree of lining wear without necessitating removal of the drum. A cover is provided for the inspection hole which cover is pivotally supported by the holddown pin of the brake shoe assembly to simplify and reduce the cost of the assembly.

3,782,514
HYDROKINETIC DEVICE
Helmut Mueller, Heidenheim/Brenz, Germany, assignor to Voith Getriebe KG, Heidenheim, Germany
Filed Feb. 23, 1973, Ser. No. 335,122
Claims priority, application Germany, Feb. 25, 1972, P 22 08 857.9
Int. Cl. F16d *57/02*
U.S. Cl. 188—296 **8 Claims**



A housing is provided with two coaxial toroidal chambers which are axially adjacent one another. A stator wheel is accommodated in each of the chambers, and a rotor wheel is also accommodated in each chamber. The wheels, which are respectively symmetrically arranged, are provided with blades extending circumferentially and all inclined in the same direction. A working-fluid passage communicates with each chamber and each such passage has a one-way valve interposed in it. A common outlet duct for the working fluid communicates with both of the chambers. A connecting passage communicates the cores of the chambers with one another.

3,782,515
SHAFT DRIVER DEVICE AND CONVEYOR SYSTEM EMBODYING THE SAME
William E. Cowen, Jr., Westland, Mich., assignor to United Industrial Engineering Corporation, Madison Heights, Mich.
Division of Ser. No. 698,533, Jan. 17, 1968, Pat. No. 3,605,990. This application Sept. 30, 1970, Ser. No. 72,884
Int. Cl. F16d *43/20*
U.S. Cl. 192—56 C **4 Claims**

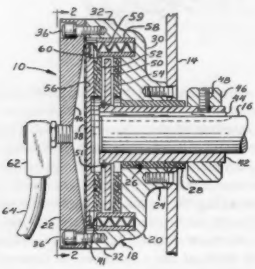


A shaft driver device is disclosed for use, illustratively, in a roller-type load conveyor or like system in which load units are halted for the performance of an operation thereon, with a consequent increased drag on a normally powered roller of the conveyor which is driven by the device. The system and drive device incorporate means which acts quite independently of any control factor, other than the drag effect, to interrupt the drive of the conveyor roller, or equivalent element in a different installation, immediately upon the arising of drag

in excess of a critical value, restoring the drive when that value diminishes or the drag ceases. The drive control means referred to is built in its entirety into the structure of a driven roller or other shaft-driven component comparable thereto.

More specifically, the system comprises a first hub member normally rotating with the driver shaft and powered from an appropriate source, a second hub member coaxial with the first member, and means in the form of a torsion spring clutch device normally coupling said members for rotation as a unit under a drag load less than the critical value. The first member is shown as having a resilient driving connection to the second member which, on excess load, yields and causes the torsion spring coupling means to be de-clutched, the shaft drive then coming to a halt. This drive connection is adjustable as to its resilient bias to determine the critical value.

3,782,516
FLUID CLUTCH
Paul W. Frisby, and Edward P. Stanny, both of Salt Lake City, Utah, assignors to McGraw-Edison Company, Elgin, Ill.
Filed Oct. 27, 1972, Ser. No. 301,487
Int. Cl. F16d *13/48, 25/04*
U.S. Cl. 192—88 A **8 Claims**

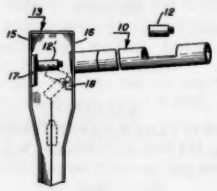


A fluid clutch having a diaphragm defining within a housing a fluid tight chamber, a clutch shaft having a disc keyed thereto for rotation in the housing adjacent the diaphragm but on the exceed thereof opposite from the chamber, a pair of friction elements adjacent and sandwiching the disc and means precluding rotation of the friction elements while allowing axial movement thereof, a thrust plate between the diaphragm and adjacent friction element, and means for communicating fluid pressure to the chamber to flex the diaphragm sufficiently to bind the disc between the friction elements and against rotation relative to the housing.

In the transmission of rotary shaft power, a clutch is frequently used for selectively connecting together or releasing a driving member and a driven member. The output requirement of such a clutch can exceed 1000 inch pounds of torque at over 1,000 revolutions per minute Moreover, many such clutches are needed since some industrial type machines might require that many pairs of driving and driven members be selectively connected together, and two or even three clutches might be connected in parallel between each pair for controlled drive of the driven member in either direction or total braking of the same.

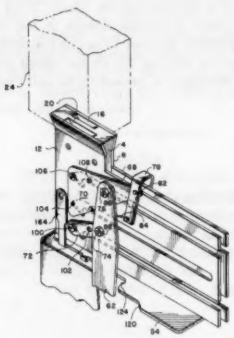
3,782,517
BOTTLE ORIENTING DEVICE
Sidney M. Newcomb, R.D. No. 1, E. Stroudsburg, Pa.
Filed Oct. 12, 1971, Ser. No. 188,369
Int. Cl. B65g *11/20*
U.S. Cl. 193—43 R **1 Claim**

A bottle orienting device in which axially-spaced bottles of random orientation are propelled against a resilient surface such as, for example, the bristles of a brush mounted in a delivery chute. The recoil of the bottles from the brush depends upon their initial orientation. If the mouth or open end of a bottle is foremost it recoils less sharply from the recoil point than if the closed bottom is foremost. The dwell of the mouth end of the bottle at the recoil point permits gravity, or other forces, to act upon the bottle so that it rotates in one



direction and moves along the delivery chute in the bottom-first position. If the closed end of the bottle is foremost the bottle rebounds from the recoil point causing the mouth end to encounter an impedance, whereby gravity rotates the bottle in the other direction so that it also moves along the delivery chute in the bottom-first position.

3,782,518
COIN CONTROLLED VENDING APPARATUS
John D. Smith, Medford, N.J., assignor to Wellman Industries, Longview, Tex.
Filed June 23, 1972, Ser. No. 265,613
Int. Cl. G07f *5/08*
U.S. Cl. 194—54 **4 Claims**



Disclosed is coin controlled vending apparatus for use with a product dispensing machine. The apparatus includes structure defining first and second generally vertical slots for receiving coins of a first and second denomination respectively. A platform is located beneath the slots to support the coins inserted in the slots such that if two or more coins are inserted in the slot they will stack edge to edge one on top of another. The apparatus further includes structure defining a first guide extending generally horizontally from a point adjacent the first slot and structure defining second and third spaced guides extending generally horizontally from points adjacent the second slot. The end of each guide adjacent a slot is formed into a foot having a heel which coincides with the termination of the corresponding guide and a toe extending from the heel downward to a point beneath the corresponding guide. A coin feeler assembly is mounted to move in a plane parallel with the guides between a rest position and an operate position. The assembly includes first, second and third members positioned to move

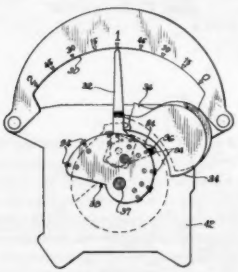
along paths contiguous with the first, second and third guides respectively as the assembly is moved. Each such member includes a hole into which a camming pin may be inserted with the hole positioned so that when a pin is inserted therein and the assembly is in the rest position, the pin extends within the heel of the foot of the corresponding guide. The first and second members are coupled together to move in unison when either is moved. The coin feeler assembly is placed in a first configuration when camming pins are inserted in the holes of the first and second members. When in this configuration, the coin feeler assembly is movable from the rest position to the operate position only if (a) a coin is inserted in the first slot so that the camming pin inserted in the hole of the first member slides over the top of the coin and along the first guide as the coin feeler assembly is moved, or (b) two coins are inserted in the second slot so that the camming pin inserted in the hole of the second member slides over the top of the topmost coin and along the second guide as the coin feeler assembly is moved. Otherwise, the camming pins are caused to move from the heel of the foot of a corresponding guide downwardly into the toe of the foot to prevent further movement of the coin feeler assembly. The dispensing mechanism is coupled to the coin feeler mechanism and is allowed to operate to dispense a product only when the coin feeler assembly is allowed to move to the operate position. The coin feeler assembly may be placed in other configurations by simply rearranging the camming pins in the holes to enable operation of the dispensing mechanism when various other coin combinations are inserted in the slots.

3,782,519

COIN CONTROLLED METER CONSTRUCTION

Bruno G. Zajac, Harwood Hts., Ill., assignor to Qonaar Corporation, Elk Grove Village, Ill.

Filed Sept. 11, 1972, Ser. No. 287,514
Int. Cl. G07c *1/30*
U.S. Cl. 194—83 **8 Claims**



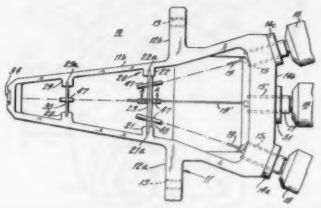
A coin controlled meter construction such as a parking meter wherein time is purchased upon insertion of a coin in the meter. A time indicator means is movable over a dial face for displaying the amount of time purchased. Means are connected to the indicator means so that the indicator means is moved out of displaying position after elapse of a fraction of the time purchased. Accordingly, if a new purchaser arrives at the meter, it will not be possible for the new purchaser to determine the amount of previously purchased time remaining on the meter so that the new purchaser will be required to insert at least one coin in order to insure adequate purchased time.

3,782,520

RESILIENT HEAD ASSEMBLY HAVING RESILIENT MOUNT

Robert Howard, Roslyn, N.Y., assignor to Centronics Data Computer Corp., Hudson, N.H.

Filed Nov. 4, 1971, Ser. No. 195,558
Int. Cl. B41j *1/18, 3/10*
U.S. Cl. 197—1 R **3 Claims**



A printer head assembly for use in high speed printers of the dot-matrix type. The assembly is comprised of a one-piece hollow die cast member having a rear wall for mounting a plurality of driving solenoids. Reciprocally mounted print wires extend from each of their associated solenoids mounted at the rear wall through the hollow interior of the die cast member with their free ends mounted so as to be substantially flush with the front wall of the die cast member. Hollow tubular guide means are provided within the interior of the die cast housing to maintain an appropriate curvature for each of their associated print wires which extend therethrough. A jewel bearing is provided at the forward end of each of the guide wires to provide a low friction jewel bearing for each of the print wires to prevent abrasive wear of the print wires. A jewel bearing is provided at the front end of the die cast housing for arranging the forward end of each of the print wires substantially along an imaginary straight line in very closely spaced fashion. At least one retaining plate is mounted within the die cast housing at a point intermediate the forward and rearward ends. A plurality of apertures are provided in the mounting plate, each of which is adapted to receive one of said tubular guide means. The diameter of each of the openings in the mounting plate is substantially greater than the outer diameter of each of the tubular guides. A suitable resilient material such as, for example, silicone rubber is affixed to one surface of the mounting plate so as to surround each of the guide tubes and to resiliently secure the guide wires to the mounting plate. The resilient mounting affords a cushioning effect to attenuate and absorb any transverse motion imparted thereto during either the impact or return movement of the print wires so as to significantly increase the useful operating life. If desired, a pair of such mounting plates having the aforesaid resilient mounting means for the guide tubes may be employed.

3,782,521

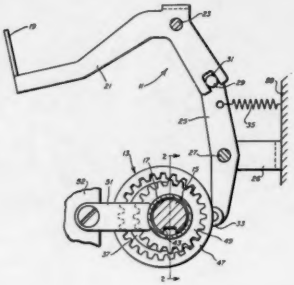
RIBBON LIFTING MECHANISM FOR A POWER-DRIVEN TYPEWRITER

Hans-Georg Hengelhaupt, Nurnberg, Germany, assignor to Triumph Werke Nuernberg A.G., Nuernberg, Germany

Filed July 19, 1972, Ser. No. 273,104
Claims priority, application Germany, July 29, 1971, P 21 37 972.6
Int. Cl. B41j *33/58*
U.S. Cl. 197—158 **7 Claims**

A ribbon lifting mechanism in a power-driven typewriter moves a ribbon from an inoperative location to a printing location in response to the operation of an oscillating drive arrangement. The oscillating drive arrangement undergoes a cyclical operation with each actuation of a type key action and includes an eccentric cam for effecting movement of the rib-

bon to the printing location and another cam having a plurality of different camming lobes for effecting further incremental movements of the ribbon to slightly different positions at the printing location. Means are provided for effecting relative movement between the eccentric cam and the other cam to bring a different camming lobe into operation with each successive cyclical operation of the oscillating drive arrangement to effect movement of the ribbon to successively different positions at the printing location. To enable the ribbon lifting mechanism to be utilized in conjunction with a single element printer, the drive arrangement is carried on a bushing which is moveable along a drive shaft.



3,782,522

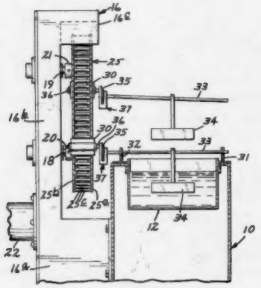
TRANSFER MECHANISM

Joseph H. Wyers, Excelsior, Minn., assignor to Fluoroware, Inc., Chaska, Minn.

Filed Sept. 18, 1972, Ser. No. 290,171

Int. Cl. B65g 47/36

U.S. Cl. 198—20 R **11 Claims**



A transfer mechanism is shown, including an endless track positioned in a vertical plane, and a follower member secured to the track. The follower member includes a pick-up member mounted for rotation about a horizontal axis, which has spaced front and back walls. A circular disk is attached at its center perpendicular to an elongated rod adapted to support articles to be transferred. The disk is sized to fit loosely between and generally parallel to the front and rear walls. A V-shaped depression in the front wall supports and centers the rod which extends thereover.

3,782,523

STORING AND FEEDING DEVICE FOR CIGARETTES

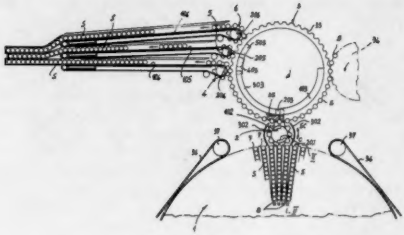
Filippo Giatti, Bologna, Italy, assignor to AMF Incorporated, White Plains, N.Y.

Filed Sept. 1, 1972, Ser. No. 285,738

Claims priority, application Italy, Sept. 7, 1971, 12907 A/71

Int. Cl. B65g 47/61

U.S. Cl. 198—22 R **19 Claims**



Apparatus for storing and feeding cigarettes, which comprises a conveyor for advancing cigarettes from the output of a cigarette manufacturing unit, means for receiving cigarettes from the conveyor and transporting them to the input of a cigarette packer, a cylindrical storage unit having a plurality of cigarette receiving slots open to the periphery thereof mounted adjacent the conveyor between the output of the cigarette manufacturing unit and the input of the cigarette packer, and means responsive to operating conditions in the packer for transferring cigarettes between the conveyor and the slots in the storage unit.

3,782,524

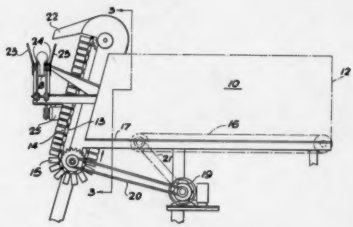
LIGHT BULB SORTER AND CONVEYOR

Thomas R. Fabian, Hubbard, and James R. Hanek, Youngstown, both of Ohio, assignors to Dynamic Systems Inc., Youngstown, Ohio

Filed May 24, 1972, Ser. No. 256,474

Int. Cl. B65g 47/24

U.S. Cl. 198—33 AA **3 Claims**



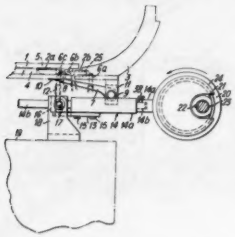
A sorting and conveying machine for moving glass light bulb shapes upwardly out of a bin and away therefrom to a work station or the like utilizes a continuous conveyor belt positioned at a slight angle from vertical and having a plurality of spaced fingers projecting therefrom arranged to move upwardly through the light bulb shapes in the bin and engage individual light bulb shapes and move them upwardly and out of the bin where they are positioned on a Y-shaped trough defined by a pair of spaced cross sectionally round conveyor belts moving transversely with respect to said machine.

3,782,525

FEED MECHANISM

Edwin Flury, 15 Heatherley Dr., Clayhall, England

Filed Dec. 22, 1971, Ser. No. 211,013
Int. Cl. B65g 47/00
U.S. Cl. 198—24 5 Claims



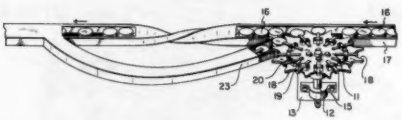
The invention disclosed relates to a feed mechanism for bottle closure lining machines and employs a positive feed member resiliently supported by an oscillating carrier to effect advance of a closure towards the lining chuck. The invention enables much higher throughput rates to be achieved when lining closures with, for example, centrifugally distributed plastisol compositions. Preferably the feed member consists of a pair of laterally spaced closure striking pins.

3,782,526

CONTAINER ORIENTER

Henry M. Simons, Wilmington, Calif., assignor to The Quaker Oats Company, Chicago, Ill.

Filed July 21, 1971, Ser. No. 164,602
Int. Cl. B65g 47/26
U.S. Cl. 198—31 AA 1 Claim



A container orienter is disclosed. The orienter is for use with round containers having upper and lower chimes of different radii and is for orienting the containers with the upper chimes in the upright position. The container orienter has an inclined rotatable indented wheel with downwardly extending fingers in the indentations. As containers move along a conveyor system adjacent to the rotatable wheel, the fingers engage the containers having the larger chime in the upper position and separate them from the other containers in order that all of the containers may be oriented in the same position.

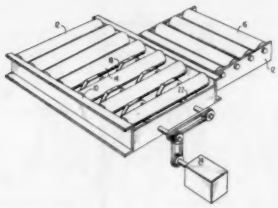
3,782,527

CLIPPED-DISC DEVICE FOR RIGHT-ANGLE TRANSFER

Victor D. Petershack, Ellwood City, Pa., assignor to Rex Chainbelt Inc., Milwaukee, Wis.

Filed Jan. 17, 1973, Ser. No. 324,268
Int. Cl. B65g 47/00
U.S. Cl. 198—25 3 Claims

A device for selectively transfering items on one roller conveyer to another conveyer set at a right-angle to the first conveyer. The device comprises a plurality of clippped discs and associated pie-shaped slave segments set between the rollers of the first conveyer and mounted for rotation at a right angle thereto. The discs and slave segments are mounted at a height such that when they are at rest, with the clipped surfaces of the discs up, they are below the surface of the rollers. When the discs are rotated, however, the circular portions of the discs protrude above the surface of the rollers, and a pin mounted on each disc causes the slave segments to rotate with the discs in angular relation such that the periphery of the pie-shaped slave segments completes the circular surface of the clipped discs, allowing the items to be moved at a right angle to the first conveyer without contacting the rollers thereof.

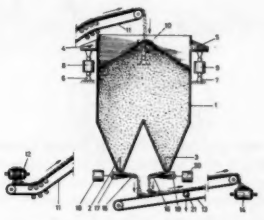


3,782,528

METHOD AND A DEVICE FOR MIXING AND HOMOGENIZING OF BULK MATERIAL

Jacobus J. Burger, Driehuis; Gerrit De Jong, Velsen, and Gradus J. J. Den Boer, Driehuis, all of Netherlands, assignors to Koninklijke Nederlandsche Hoogovens En Staalfabrieken N. V., Ijmuiden, Netherlands

Filed Sept. 10, 1971, Ser. No. 179,499
Claims priority, application Netherlands, Sept. 10, 1970, 7013571
Int. Cl. B65g 57/02
U.S. Cl. 198—36 6 Claims



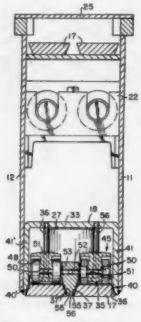
In a method and means for mixing and homogenizing bulk material such as lump ore and ore concentrates, in which a mixing heap is formed by dumping the material as a large number of layers one on top of the other, said mixing heap thereupon being dug off over the entire height, in which for forming said mixing heap the material to be dumped in layers is fed by a digging machine onto a belt conveyor system and is dumped from this system by a longitudinally moving dumping machine onto the said mixing heap, the material during transport to the dumping machine passes through a throughflow hopper, from which it is discharged in a constant flow, and the speed of the digging machine is controlled in dependency upon the filling of this hopper by special mechanisms, preferably comprising a metering device below the hopper, weight signalling means, weight-to-volume converting means, and special supports and controls.

3,782,529

MAGNETIC RAIL CONVEYOR

Dario Buccicone, Gary, Ind., assignor to Bucciconi Engineering Co., Inc., Gary, Ind.

Filed July 12, 1972, Ser. No. 270,963
Int. Cl. B65g *17/46*
U.S. Cl. 198—41 **4 Claims**



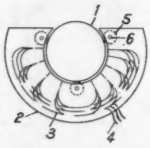
An overhead rail-type metal sheet conveyor which comprises an elongate frame with a pair of endless sheet carrying belts carried on spaced end pulleys and a plurality of spaced electromagnets mounted in a downwardly opening housing having therein adjustable plate-like elements with downwardly opening guide recesses in which the belts travel while the sheets are held thereon by magnetic force and advanced along the lower run of the conveyor.

3,782,530

MATERIAL HANDLING ROLLER

Oliver Breting, 16, Residence la Pinsonne, Garges-les-Gonesse (Val d'Oise), France

Filed Oct. 2, 1972, Ser. No. 294,228
Int. Cl. B65g *13/02*
U.S. Cl. 198—127 E **12 Claims**



A material handling roller which form the armature of an electric motor whose field winding is supported by the roller and is held against rotation by means coupled to a fixed element.

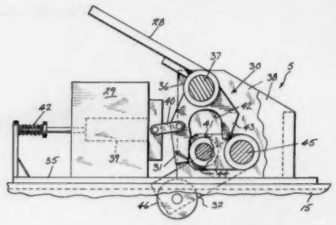
3,782,531

TRIP MECHANISM FOR CONVEYING APPARATUS

David W. Wolbrink, Hartford, Wis., assignor to Speaker Motion Systems Inc., Milwaukee, Wis.

Filed Apr. 10, 1972, Ser. No. 242,460
Int. Cl. B65g *17/16*
U.S. Cl. 198—155 **10 Claims**

A tilting tray trip mechanism for controlling a series of tray units includes a tripping plate pivotally mounted for positioning between a horizontal reset and an inclined set or trip position with a depending leg as a part of the latch means. A momentarily pulsed solenoid is connected to this leg and positively moves the elements to the trip position. A pivotally mounted latch arm is coupled to an opening in the leg and pivoted to abut the leg to mechanically hold the leg and plate in the set position. A reset arm is connected to the pivot support for the latch arm and is mechanically moved into the path of an inclined reset plate on the trailing end of the tray unit. The reset plate returns the reset arm and attached latch arm from latching alignment and positively pivots the leg and cam member to the horizontal reset position.

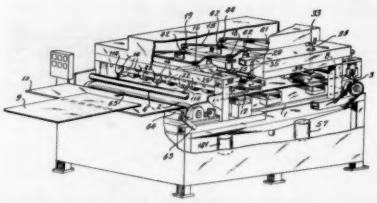


3,782,532

APPARATUS FOR DEVELOPING LITHOGRAPHIC PLATES

Robert E. Harrell; Arthur E. Essmueller, and Roy C. Bax, all of St. Louis, Mo., assignors to Western Litho Plate & Supply Co., St. Louis, Mo.

Division of Ser. No. 729,040, May 14, 1968, Pat. No. 3,608,464. This application Feb. 4, 1971, Ser. No. 112,619
Int. Cl. B65g *15/00*
U.S. Cl. 198—184 **4 Claims**



Apparatus for post-exposure treatment of lithographic plates having an endless belt on which such a plate is transported to, through, and beyond, at least one operating station, and in which the belt is wetted and the plate undergoing treatment is held fast on the wetted belt by interfacial tension.

3,782,533

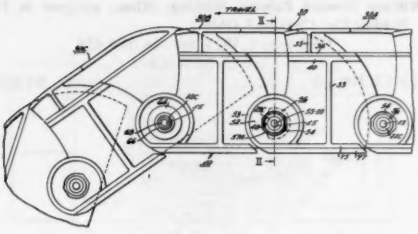
STABILIZED SIDE PLATE CONSTRUCTION FOR GRATE CONVEYOR

Walter J. Hartwig, Oconomowoc, Wis., assignor to Allis-Chalmers Corporation, Milwaukee, Wis.

Filed Sept. 20, 1972, Ser. No. 290,634
Int. Cl. B65g *15/30*
U.S. Cl. 198—196 **19 Claims**

A stabilized side plate construction for a grate conveyor or the like in which one side plate of each pair of pivotally connected side plates has loosely keyed thereto a flanged spool which is journalled for pivotal movement on the reduced diameter extension of a chain pin or, alternatively, on the

reduced diameter extension of the thru rod of the conveyor, with the flange of the spool abutting a radial shoulder of the larger diameter portion of the chain pin or of the thru rod, as the case may be, for proper orientation of the spool at a fixed reference location on the chain pin or on the thru rod. The other side plate of the pair of pivotally connected side plates is pivotally movable relative to the spool shoulder although the spool shoulder does not necessarily serve as a bearing for the



other side plate. A washer which, in effect, is the opposite flange of the spool, is retained on the chain pin reduced diameter extension, or alternatively, on the reduced diameter extension of the thru rod, at a fixed lateral spacing from the spool flange, whereby to restrict the two pivotally connected side plates to a dimensionally predetermined limited relative lateral movement therebetween, thus minimizing the "wobble" between pivotally connected side plates.

3,782,534

CONVEYOR BELT CLEANING DEVICE

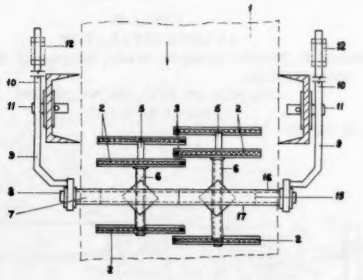
Wouter Holleman, 15 Wren St., Vanderbijlpark, Transvaal, South Africa

Filed Jan. 18, 1972, Ser. No. 218,715

Claims priority, application South Africa, Jan. 22, 1971, 0412

Int. Cl. B65g *45/00*

U.S. Cl. 198—230 **7 Claims**



The invention is concerned with cleaning of material from conveyor belts and consists of at least one pair of blades each extending partway across a belt to be cleaned. The contiguous ends of the blades are made to overlap each other in the vicinity of the center line of the belt. The blades are mounted so that they can pivot about axes located parallel to and within the width of the belts while carried in mountings which can pivot about axes transverse to the belt. There may be a plurality of pairs of blades and the mountings will be supported in hangers which are also pivoted about axes extending across the belt.

3,782,535

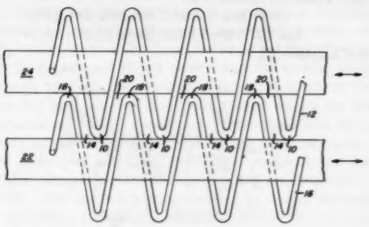
SCREW CONVEYOR COIL WIPER

Thomas Yousch, 16258 Vintage, Sepulveda, Calif.

Filed June 15, 1972, Ser. No. 263,343

Int. Cl. B65g *33/18, 45/00*

U.S. Cl. 198—229 **10 Claims**



A wiping device for cleaning the flights of a screw conveyor by having a helical wiping coil that rotates with the rotating screw and simultaneously is moved along the axis of the screw in a reciprocating motion such that the wiping coil lightly engages the entire trough of the screw between the ridges or lands of the screw flights in a reciprocating manner.

3,782,536

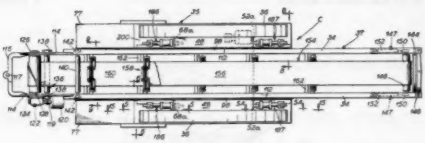
MOBILE TRANSFER CARRIER

David Toney, Bluefield, W. Va., assignor to West Virginia Armature Company, Bluefield, W. Va.

Filed May 19, 1972, Ser. No. 254,935

Int. Cl. B65g *25/08*

U.S. Cl. 198—233 **5 Claims**



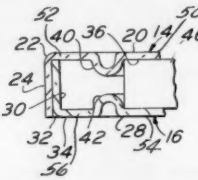
Mobile transfer carrier for use in a mining conveyor system to carry coal or ore away from a mine face. It provides an essential link in a train of conveyors where it is positioned to receive the discharge from a first bridge conveyor connected to a mining machine, and to discharge onto a second bridge conveyor which delivers to a portable conveyor moving up with the advancing mine face. The mobile transfer carrier has a conveyor frame supported on a tramming frame for mobility. The conveyor frame has a pair of elongated, parallel, horizontally spaced, unitary side rails rigidly interconnected into a single adjustable unit and has continuous track surfaces to support the discharge carriage of a bridge conveyor. The tramming frame has a pair of spaced, vertical, longitudinally extending gib plates in close, slidable engagement with the side rails to limit side movement while enabling vertical and some longitudinal movement of the conveyor frame. The conveyor frame is supported on opposite ends of the tramming frame by fore and aft pairs of transversely spaced, pivoted elevating levers. One pair of elevating levers is connected between the two frames by pivot pins to raise and lower one end of the conveyor frame while limiting fore and aft movement. The other pair of elevating levers is pivotably and slidably connected between the two frames to raise and lower the other end of the conveyor frame while enabling relative

longitudinal movement between the frames to compensate for differences between the longitudinal components of movement of the two pairs of elevating levers.

3,782,537
COIN HOLDER

Joseph M. Segel, Merion, Pa., assignor to The Franklin Mint, Inc., Franklin Center, Pa.

Filed Jan. 5, 1972, Ser. No. 215,597
Int. Cl. A45c *11/00*; **B65d** *85/02, 85/54*
U.S. Cl. 206—.82 **3 Claims**

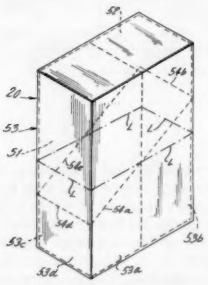


A coin holder comprised of two halves which are assembled to define an enclosure for the coin. Each of the halves has mutually facing means for engaging the perimeter of a coin and positioning the coin within the coin holder.

3,782,538
APPARATUS FOR PROTECTING AND DISPLAYING TINSEL GARLAND AND THE LIKE

Abraham S. Kinderman, Hopkinson House Washington Square - Sixth and Spruce Sts., Philadelphia, Pa.

Filed Mar. 10, 1972, Ser. No. 233,542
Int. Cl. B65d *81/36, 25/04*
U.S. Cl. 206—45.12 **6 Claims**



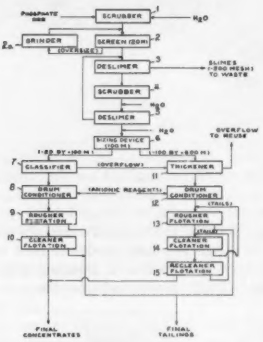
A package having tiers of tinsel garland and the like comprising a substantially rectangular parallelepiped shaped carton having a plurality of support members contained therein each adapted to carry a plurality of such tinsel garland in a neatly spaced manner. The supporting tray members are bent or otherwise formed so as to provide separating members for maintaining spacing between adjacent garlands supported by a tray and further providing rigid support for a tray positioned thereupon to prevent crushing of the garland. Means may also be provided for visually observing the contents of lower tiers and for facilitating removal of each tray. The neat compact manner in which garland is stacked facilitates use of the package for display means.

Alternative display means comprising open ended carton sub-assemblies housed within an enclosing carton are adaptable for display use. The enclosing carton may be slit in such a manner as to form a pair of display stands each adapted to support a display carton in a tilted fashion. Each display carton sub-assembly is provided with a shelf type assembly cut from a single blank of stiff cardboard or other like material to position and support a plurality of garlands.

3,782,539
BENEFICIATION OF PHOSPHATE ORES

William Howard Painter, Hibbing, Minn., assignor to PM Holding Co., Cleveland, Ohio

Filed Nov. 1, 1971, Ser. No. 194,456
Int. Cl. B03b *9/00*
U.S. Cl. 209—2 **8 Claims**

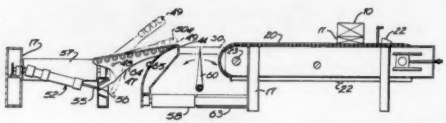


A process for beneficiating phosphate ores in which the ore is scrubbed and deslimed prior to separation into a coarse fraction and a fine fraction, each of which is subjected to a plurality of anionic flotation steps and screening steps to obtain high recovery and high grade phosphate product whereby the acid cleaning and cationic flotation steps previously used are eliminated.

3,782,540
LUMBER SEPARATOR

Donald E. Mosely, Spokane, Wash., assignor to Bitco, Inc., Spokane, Wash.

Filed Sept. 28, 1972, Ser. No. 293,447
Int. Cl. B07c *1/10*
U.S. Cl. 209—73 **5 Claims**

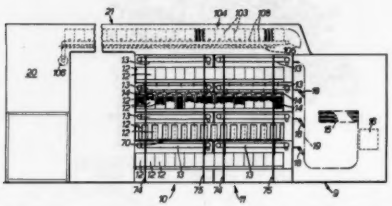


A lumber separator is described for receiving, separating and re-routing a vertical stack of boards, particularly such stacks formed by horizontal resawing operations of a lumber mill. The separator receives an individual stack from a longitudinal input conveyor on a relatively horizontal table. A plurality of transverse conveyor chains move the stack laterally over the table, onto the arms of a removable support means, and against an abutment with sufficient velocity to dislodge the top stack member. The bottom board is dropped as the arms are retracted, onto a bottom board conveyor.

3,782,541
APPARATUS FOR TRANSFERRING STACKS OF MAIL OR LIKE ARTICLES

David Wood, Clevedon, England, assignor to Masson Scott Thrissell Engineering Limited, Bristol, England

Filed Dec. 11, 1972, Ser. No. 314,241
Claims priority, application Great Britain, Dec. 15, 1971, 58,262/71
Int. Cl. B65g 59/00
U.S. Cl. 209—74 R 8 Claims

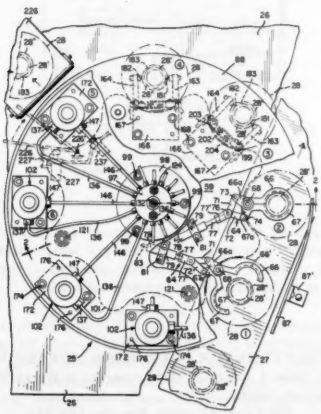


An automatic letter sorting machine including a large number of individual sorter boxes arranged in horizontal rows, a number of horizontal conveyors for delivering mail via deflector gates to the individual boxes, individual ejectors for ejecting stacks of mail from the boxes, a power operated receiver shelf moving vertically on guides at the front of the machine with compartments to receive the ejected mail, an overhead discharge conveyor at the top of the machine, a further ejector for shifting stacks of mail from the receiver shelf into compartments of the discharge conveyor, and an automatic mail bundling machine at the output of the discharge conveyor.

3,782,542
AUTOMATIC BOTTLE THREAD INSPECTION APPARATUS

Harry E. Scribner, 9036 N. 75th St., Milwaukee, Wis.

Filed Apr. 23, 1973, Ser. No. 353,709
Int. Cl. B07c 5/00
U.S. Cl. 209—74 10 Claims

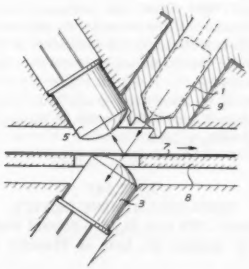


An apparatus is hereby provided which will automatically sense the defective oversized or chipped threads on the top of glass container or bottle and eject the so impaired bottle from a line of such container or bottles being conveyed to the apparatus by a belt conveyor and let the unimpaired bottles pass from the apparatus ready for immediate use, filling and the safe application of closure caps. The line conveyor runs along one side of the apparatus and locates the bottles into star-wheel openings of the apparatus and through the engagement of these bottles with the turret of the apparatus; the turret is dragged and turned by the continuation of movement of the bottles upon the belt until the next bottle has been gathered by a succeeding star opening in the star-wheel turrent. This next bottle picks up the drive from the conveyor to allow the preceding bottle to be initially centered by a similarly internally threaded two-part clamp device and the turning of the bottle therein by a side friction engaging wall to orientate bottle so that the lead edge of the bottle thread enters the jaws first. Fractures are broken away from a fractured bottle thread preparatory to the thread inspection cycle. After the neck of the bottle is clamped, it is taken to the next station to receive a lift inflatable plunger bulb that is turned and lowered into the bottle neck, the bulb inflated, the bottle neck internally gripped, the clamp opened, the bottle lifted from the conveyor by the bulb rotated for the inspection of the thread by opposing sensing fingers of a microswitch sensing device and biased by a spring to close upon one another. The bottle is lifted and at the same time turned by the device between its opposing sensing fingers by a reversible air motor that drives a worm gear in an internally-threaded depending sleeve, both with threads of the same pitch and size of the bottle threads being inspected. Operating with the sensing fingers are adjustable operating members aligned with microswitches that will be activated upon the thread being oversize or undersize or upon a sensing finger dropping into a notch or a nick to signal and set up the apparatus for the release and ejection of that bottle at a selected station. The unimpaired bottle will be continued to another station where it can be ejected by any suitable means. An adjustable electric timer controls the lowering and lifting of the bottle inflatable lifting bulb and the extent of travel of bottle threads within the sensing fingers and the ejecting of the impaired bottle from the apparatus.

3,782,543
DOCUMENT RECOGNITION SYSTEMS

Mario Martelli, Via della Selva 1, Compiobbi, and Mario Martelli, Viale Talenti 63, Firenze, both of Italy

Filed Oct. 12, 1972, Ser. No. 296,853
Claims priority, application Italy, Oct. 15, 1971, 9724 A/71
Int. Cl. B07c 5/342
U.S. Cl. 209—75 13 Claims



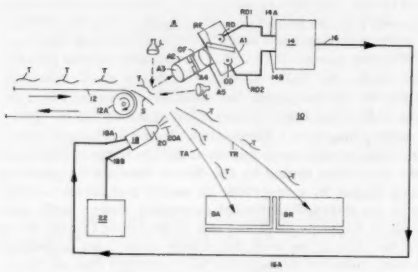
A bank note recognition system includes an optical analyser for scrutinising the watermark, selected areas of print on the surface of the bank note, the wire band in the bank note and the density of the paper of the bank note. The analyser in its simplest form includes a lamp for illuminating a discrete area of the bank note and two photo electric elements on opposite side of the bank note for respectively sensing the transparency

and reflectivity of the discrete area of the bank note. The analysis will provide indication whether the bank note is genuine and will accept the bank note only if considered to be genuine.

3,782,544
AUTOMATIC GRADER

Joseph R. Perkins, III, Burke, Va., assignor to AMF Incorporated, White Plains, N.Y.

Continuation of Ser. No. 145,444, May 20, 1971. This application Aug. 3, 1972, Ser. No. 277,499
Int. Cl. B07c *5/342*
U.S. Cl. 209—111.6 **38 Claims**



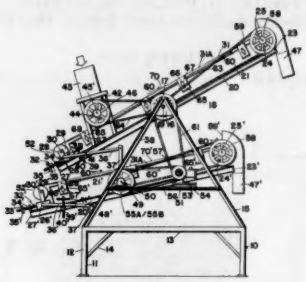
A system and apparatus for grading and sorting tobacco leaves and the like according to color and brightness are provided. The color of each tobacco leaf is compared photoelectrically with the color of a replaceable background color standard over which each leaf is conveyed. The system can be operated in either a normal mode, i.e., detecting and separating all those leaves darker than the background standard, or a reverse mode, i.e., detecting and separating all those leaves that are lighter than the background standard. A plurality of such systems are set to perform a series of sequential detections and separations, against a selected plurality of background color standards to effect separation of a plurality of tobacco leaves into a preselected number of grades or classifications. The system and apparatus can be embodied in a transducer unit for converting existing tobacco sorting machinery from a manual to an automatic sorting mode of operation. Two color detection of reflected light is used to determine brightness as well as greenness. A separate detector for each color is positioned behind a broad band color filter to sense reflected light from the tobacco leaves and the background standard. Either one or the sum of the resulting signals for each detected color is indicative of the brightness of the leaves while the difference between the signals is indicative of the greenness. A pneumatic reject mechanism is actuated in response to given leaf grade conditions, or a lack thereof, to separate undesired grades of leaves from the plurality of leaves being graded.

3,782,545
SEED RECLAIMING DEVICE

Roy Allen Rayner, 492 Rita St., and Harold Waldemar Sandberg, 421 N. Algoma St., both of Thunder Bay, Ontario, Canada

Filed May 15, 1972, Ser. No. 253,619
Int. Cl. B07c *9/00*
U.S. Cl. 209—114 **1 Claim**

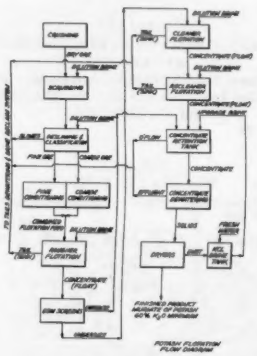
An inclined belt is shaped on the upper run by side rollers to form a slight trough. By-products resulting from initial seed cleaning are dropped from a hopper onto the belt just above the lower end. Heavy round seeds such as rape-seeds bounce and pass over the lower end while light seeds and flat seeds and other contaminants pass over the upper or head end. The fraction that passes over the lower or tail end drops onto a further inclined belt underneath the first belt and at a slightly flatter angle and the process is repeated but giving a basic separation of heavy rape-seed over the lower end and light rape-seed and mustard seed over the upper end both of which fractions can be used commercially.



3,782,546
CATIONIC CONDITIONING AGENTS FOR POTASH FLOTATION

Roscoe Conklin Kirwin, Midland, Tex.; William Lewis Hart, Pittsburgh, and Joseph Michael Antonetti, Burgettstown, both of Pa., assignors to Calgon Corporation, Pittsburgh, Pa.

Filed Dec. 3, 1971, Ser. No. 204,647
Int. Cl. B03d *1/02*
U.S. Cl. 209—166 **3 Claims**



An improved froth flotation process for separating sylvite from a pulp containing sylvite using a water-soluble, high molecular weight, diallyl dialkyl quaternary ammonium polymer as a slime conditioning agent is disclosed.

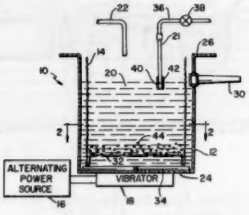
3,782,547
STRUCTURE FOR ULTRASONIC SCREENING

Harry W. Dietert, Kerrville, Tex., assignor to Harry W. Dietert Co., Detroit, Mich.

Filed Oct. 12, 1971, Ser. No. 188,251
Int. Cl. B03b *3/00*; **B07b** *1/00*
U.S. Cl. 209—268 **2 Claims**

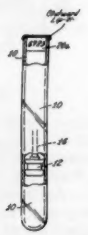
Microparticle separation by ultrasonic screening in both batch and continuous operations and structure for accom-

plishing such operations. In the batch operation, particles to be cleaned and separated in accordance with their size are placed in a filter screen container, and the filter screen container is immersed in a water bath which is vibrated at an ultrasonic frequency so that the filter screen is maintained in a clean condition and the particles are scrubbed clean so as to pass readily through the filter screen under pressure. In the continuous microparticle separation operation, material is fed



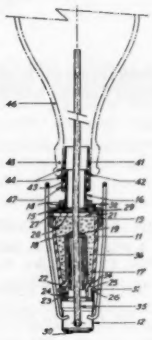
into a first chamber in which a vibrated water bath is maintained by water jets directed toward a vibrated filter screen separating a container into a first and second chamber. Filtered material and a portion of the water bath are withdrawn from the second chamber, and the rest of the water along with the residue of the material to be filtered are withdrawn from the first chamber. In both the batch and continuous methods, the water bath and/or filter medium are vibrated at between fifteen and sixty thousand hertz.

3,782,548
SERUM SKIMMER
John G. Bowen, 1150 Oak St., South Pasadena, Calif.
Continuation-in-part of Ser. No. 161,696, July 12, 1971, abandoned. This application Dec. 7, 1972, Ser. No. 312,817
Int. Cl. B01d *21/24*
U.S. Cl. 210—94 **3 Claims**



An instrument is provided for skimming serum from the cellular material, such as the red blood cells, of a blood sample; the cells having been dispersed, for example, by centrifugal action, to the bottom of the tubular receptacle containing the sample. The instrument of the invention includes a resilient plug member which is inserted down into the receptacle, and which has an opening therein that permits the serum to pass through the plug member as it is moved down through the serum in the receptacle. The plug preferably has a filter across the opening which permits the serum, but not the cellular material, to pass through the opening as the plug is pushed down into the tubular receptacle. A hollow rigid rod extends upwardly from the plug, and the rod is removably attached to the plug to serve as a conduit for the serum flowing through the opening in the plug. The rod also serves as a handle to permit the plug to be pushed down into the serum in the tubular receptacle and subsequently to be pulled up towards the mouth of the receptacle. A label may be attached to the instrument which remains in the tubular receptacle for labeling purposes after the instrument has been removed. The label may be coded for machine reading.

3,782,549
FILTER AND AERATOR DEVICE
Jacques Muller, 112 Avenue du Genl. de Gaulle, La Garenne-Colombes, France
Filed Oct. 24, 1972, Ser. No. 300,195
Claims priority, application France, Nov. 4, 1971, 7139476
Int. Cl. C02c *1/14*
U.S. Cl. 210—95 **8 Claims**

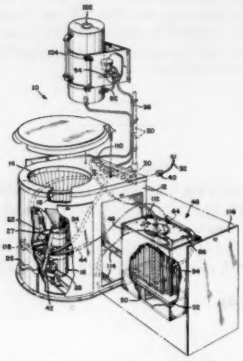


The invention relates to a filtering and aerating device comprising a filter cartridge formed by a stack of grooved washers positioned in a chamber for flow of water through the stack of washers and out of the outlet of the device. The outlet has an associated port for entry of air into the filtered jet of water to aerate the latter. The chamber in which the stack is positioned is designed to contain a deodorizing and purifying substance to remove odors from the water and the inlet of the device is adapted to be removably connected to a source of water, such as to the neck of a bottle, for example, an air entry tube extending axially through the unit having one end positioned in the bottle and its other end in connection with the exterior to permit free flow of water through the unit when the bottle is inverted.

3,782,550
WASTE TREATMENT SYSTEM
Vincent Materese, Dayton, Ohio, assignor to Dayton Manufacturing Company, Dayton, Ohio
Filed Nov. 5, 1971, Ser. No. 196,092
Int. Cl. C02c *1/40*
U.S. Cl. 210—134 **14 Claims**

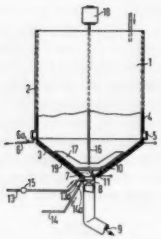
A waste treatment system which receives liquid and solid waste, macerates the solids to form a slurry and pumps the

slurry to a treatment tank. In the treatment tank the solids are separated from the liquids and retained in the tank, while the



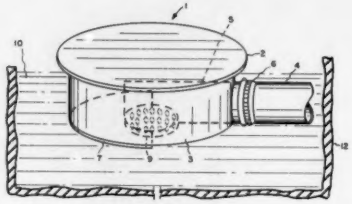
liquid effluent is treated chemically to render it pathogenically harmless and discharged from the system.

3,782,551
LAUTER TUB AND METHOD
Gerd Soldan, 8121 Aidling, Habach, Germany
Filed Dec. 17, 1970, Ser. No. 99,116
Claims priority, application Germany, Dec. 23, 1969, P 19 64 416.7
Int. Cl. B01d *39/12*
U.S. Cl. 210—179 **7 Claims**



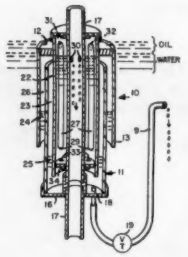
The mash in the brewing of beer is purified to provide desired concentrations of wort by filtering the mash in a vessel provided with a filtering sleeve vertically and fixedly mounted at an intermediate section of the vessel, a first outlet below the sleeve for first wort, at least one additional outlet below the first outlet to remove second wort, an outlet for draff sediments at the lower terminus of a conical lower section of the tub, the lower section being open to the upper intermediate section, an agitator within the conical lower section, and a second filtering element at the outlet for draff sediments.

3,782,552
FLOATING SUCTION NOZZLE
Stephen T. Wendell, 54 Central Ave., Demarest, N.J.
Filed Mar. 22, 1972, Ser. No. 237,049
Int. Cl. E02b *15/04*
U.S. Cl. 210—242 **1 Claim**



A floating suction head for preventing the intake of matter such as debris from a liquid is described.

3,782,553
LIGHT LIQUID SKIMMER
Carroll E. Brekke, 2229 Parkland Way, Petaluma, Calif.
Filed May 3, 1972, Ser. No. 249,863
Int. Cl. E02b *15/04*
U.S. Cl. 210—242 **7 Claims**



A light liquid skimmer employs an air seal piston having skim slots on the upper end thereof and a flow through vessel, said piston being moveable with respect to said vessel, to skim a light liquid from a heavy liquid. The position of the skim slots moves upwardly or downwardly as the proportion of light liquid decreases or increases, respectively. The adjustment is accomplished by the movement of the air seal piston with respect to the flow through vessel due to the adjustment in buoyancy of the air seal piston as the weight of the liquid in the flow through vessel varies and thereby changes the configuration of the air seal between the air seal piston and flow through vessel. Skimmed liquid flows downwardly through intake conduits within the air seal piston and flow through vessel and is introduced to the mixture of liquid within the flow through vessel in the lower region thereof. The light liquid rises within said flow through vessel and is recovered through light liquid recovery slots configured in a light liquid recovery tube positioned within the vessel. The heavy liquid continues to flow downwardly and is discharged through a heavy liquid discharge orifice at the bottom of the flow through vessel.

3,782,554

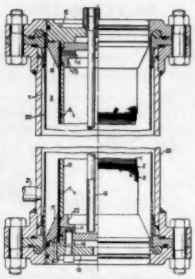
PRESSURES FILTERS AND FILTER ELEMENTS THEREFOR

Ralph Derek Gwilliam, St. Austell, England, assignor to English Clays Lovering Pochin & Company Limited, St. Austell, Cornwell, England

Continuation-in-part of Ser. No. 46,342, June 15, 1970, abandoned. This application Sept. 18, 1972, Ser. No. 289,840

Int. Cl. B01d *29/10*

U.S. Cl. 210—350 9 Claims



A tube pressure filter is provided with a filtering means which comprises (a) filtrate receiving and drainage member including a wire mesh sleeve which is of a size such that it fits closely over an inner tubular body of the tube pressure filter and which in no direction has more than 200 wires to the inch nor a spacing between the wires smaller than about 0.003 inches but which has in at least one direction at least 60 wires to the inch and a spacing between the wires in said one direction not greater than about 0.012 inches, (b) a backing cloth of coarse-textured material and (c) a filter element comprising a seamless filter cloth sleeve which fits closely over the backing cloth and which has a pore size sufficiently small to prevent the passage therethrough of material to be pressure filtered.

3,782,555

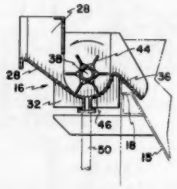
FEED DISTRIBUTION MEANS FOR VACUUM FILTERS

Dallas H. Solum, Salt Lake City, Utah, assignor to Envirotech Corporation, Salt Lake City, Utah

Filed Apr. 3, 1972, Ser. No. 240,438

Int. Cl. B01d *33/06*

U.S. Cl. 210—404 1 Claim



A liquid feed distribution trough having an arcuate bottom is mounted horizontally along the upper edge of a rotary drum filter tank. Within the feed distribution trough, an elongated paddle wheel is rotatably mounted for distributing a liquid containing particulates evenly throughout the trough. The edge of the trough is provided with a curved overflow lip to permit the uniformly distributed feed to gravitationally flow from the trough into the tank. The particulates are subsequently separated from the liquid by the rotary drum filter.

3,782,556

FILTER FOR LIQUIDS

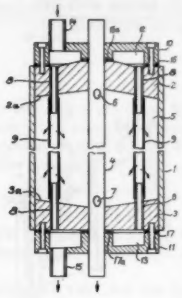
Jakob Murkes, Bandhagen, Sweden, assignor to Alfa-Laval AB, Tumba, Sweden

Filed Apr. 12, 1972, Ser. No. 243,394

Claims priority, application Sweden, May 18, 1971, 6424/71

Int. Cl. B01d *29/04*

U.S. Cl. 210—409 2 Claims



A closed chamber of a casing contains means forming substantially vertical channels extending completely through the chamber, each channel having a wall of filter material and also having an inlet and an outlet disposed outside the casing. The bottom wall of the chamber slopes downward to a separate outlet for the filtrate which passes through the filter material; and the top wall of the chamber slopes upward toward a separate outlet for a flushing liquid, which is supplied through the outlet for the filtrate.

3,782,557

SEPARATION DEVICE

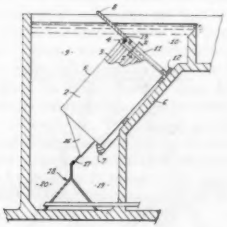
Jacob Pielkenrood, Krommenie, Netherlands, assignor to Pielkenrood-Vinitex N.V., Assendelft, Netherlands

Filed July 26, 1971, Ser. No. 166,015

Claims priority, application Netherlands, July 26, 1970, 7011053

Int. Cl. B01d *21/02*

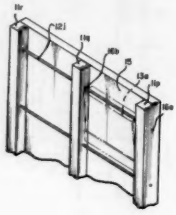
U.S. Cl. 210—521 10 Claims



A device for separating precipitation and/or floatation components from a liquid by means of a separation assembly positioned in a basin at an angle in respect of the horizontal plane, and having a number of inclined separation passages, which basis is divided into a supply and a discharge chamber by means of a separate baffle which is sealed to the wall of the basin and to the upper end portion of the separation assembly, this baffle thus providing a complete isolation between said

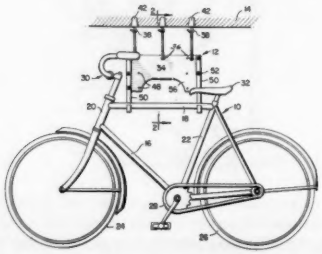
chamber, said baffle being positioned in such a manner that a pivoting movement or removal of said assembly for cleaning is not impeded, and unwanted accumulation of sediment on portions of this assembly is prevented.

3,782,558
MATCH-BOOK DISPLAY PLAQUE
George W. Schael, Jr., 3 Chiplon Ln., Scotch Plains, N.J.
Filed Apr. 17, 1972, Ser. No. 244,641
Int. Cl. A47f *7/00*
U.S. Cl. 211—13 **2 Claims**



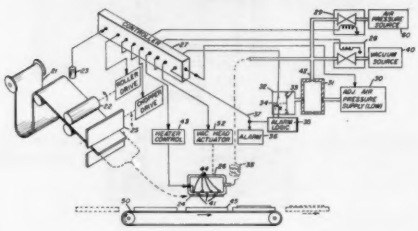
In a preferred embodiment, a plaque including an aperture in an upper portion of the structure for hanging on a peg or nail or the like, flatly against a wall, the front being substantially flat and having on at least opposite edges of the plaque, forwardly extending structures receivable of a crossbar which when opposite ends of the crossbar are mounted in the opposing side supports, the crossbar extending substantially parallel to plaque front flat face and along a substantially horizontal axis such that one or more matchbook covers are suspendable on the bar when the matchbook covers are closed and the bar inserted through the passages defined by the closed matchcovers, typically there being a series of mounted bars spaced along the face of the plaque ranging from the bottom to the top thereof and all being about parallel to the horizontal axis.

3,782,559
CEILING CYCLE RACK
Philip C. Wright, 191 E. 76th St., Apt. 6A, New York, N.Y.
Filed May 30, 1972, Ser. No. 257,901
Int. Cl. B62h *3/12*
U.S. Cl. 211—17 **3 Claims**



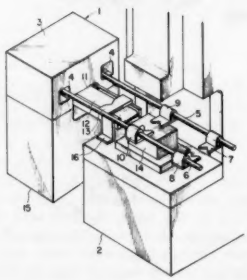
A ceiling cycle rack of an easily portable construction for suspending cycles from ceilings including a plate removably extended from the ceiling by a plurality of hooks or the like, and a pair of J-shaped hangers attached to the plate and laterally adjustable thereon to engage a cycle frame. Fittings are provided to adapt the hanger for suspending girls' cycle frames. Extension means permit adjustment of the vertical height of the cycle. A scale is used to test the weight supporting the capacity of the plate suspension means.

3,782,560
LABELLING MACHINE WITH PNEUMATIC MONITOR
Ghassan N. Kahwati, Rochester, and Allen C. Mercer, Brockport, both of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.
Filed Nov. 19, 1971, Ser. No. 200,301
Int. Cl. B66c *1/02*
U.S. Cl. 214—1 BS **4 Claims**



A high speed labelling machine which picks up and lays down labels by means of an "apertured" pressure-and-vacuum head includes a monitoring system for assuring against faulty labelling. The monitoring system employs a pressure switch — rather than a vacuum switch — to check for vacuum during the monitoring operation. Use of a pressure switch as a vacuum detector is made possible by means of a chamber connected to the head, and to which an auxiliary internal pressure is applied ... the pressure switch being also connected to the chamber.

3,782,561
WORKPIECE TRANSFER MEANS
Masaru Orii, 2102-1, Oaza Hegashi-Hango, Kawaguchi, Japan
Filed Sept. 11, 1972, Ser. No. 288,164
Int. Cl. B65g *25/04*
U.S. Cl. 214—1 BB **10 Claims**



A workpiece transfer means having two parallel rods carrying clamping means secured thereto in pairs at positions such that the clamping means in each pair face each other, and means to cause swining motion of the rods towards and away from each other in symmetrical relation to each other. The transfer means may also include means to cause symmetrical vertical movement of the rods. The rods are also coupled

together so that they can be moved reciprocally in horizontal axial direction. Hence the rods can undergo movement towards each other, advancement, movement away from each other and retraction for transferring a workpiece from one place to another. If vertical movement of the rods is additionally provided through operation of a vertical drive source, the rods can then be moved towards each other, raised, advanced, lowered, moved away from each other and then retracted for transferring a workpiece from one place to another.

3,782,562

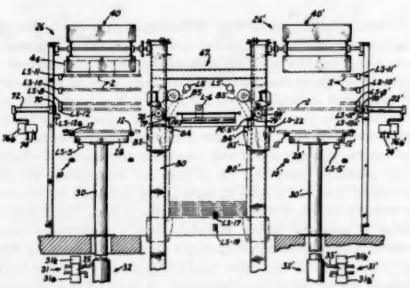
APPARATUS FOR STACKING EMPTY PALLETS

Harold S. Burt, Mendota, and Vasco O. Carvalho, Skokie, both of Ill., assignors to Conveyor Systems, Inc., Morton Grove, Ill.

Division of Ser. No. 171,554, Aug. 12, 1971. This application July 28, 1972, Ser. No. 275,913

Int. Cl. B65g *57/10, 59/02*

U.S. Cl. 214—6 M **4 Claims**



Two depalletizing stations, preferably sharing a common empty pallet stacking station and a common inlet conveyor to be rendered operable by the automatic sequential feeding of loaded pallets to the inlets thereof from the common inlet conveyor. Alternatively, one of the depalletizing stations can be shut down when desired. When the depalletizing stations are both operated, article position and/or apparatus condition sensing means and associated control means responsive thereto control the movement of palletized articles from the common inlet conveyor to the conveyors extending from the common inlet conveyor to the depalletizing stations so palletized articles are automatically fed to a depalletizing station free to receive a new loaded pallet. The depalletizing stations most advantageously discharge articles upon respective article-receiving conveyors each of which is capable of discharging articles at either one of the same two discharge points when operating separately. Empty pallets from the depalletizing stations are fed to different sides of a common pallet stacking station which can receive pallets only one at a time from the depalletizing stations.

3,782,563

DUMBWAITER LOADING AND UNLOADING APPARATUS

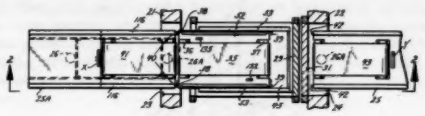
Bernard J. Brockmeyer, Normandy; Edward R. Goedeke, Belnor; Malvern A. Schweig, Clayton, and William R. Tracy, Kirkwood, all of Mo., assignors to Security Fire Door Company, St. Louis, Mo.

Continuation of Ser. No. 856,389, Sept. 9, 1969, abandoned. This application Sept. 13, 1971, Ser. No. 180,204

Int. Cl. B65g *1/06*

U.S. Cl. 214—16.4 R **6 Claims**

A dumbwaiter loading and unloading apparatus employing a motor driven belt unit is mounted on the dumbwaiter platform and arranged to project a carriage outwardly of the platform at a selected landing level. The carriage is provided with a moving belt reversibly driven to cooperate with a worktable stationed at a selected landing level. The worktable is provided with a slave belt that is driven by the belt drive in the dumbwaiter apparatus in a direction to move a load out of the unit onto the worktable or to move the load from the table onto the dumbwaiter apparatus.



3,782,564

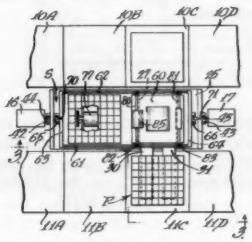
PRODUCT PICKING STACKER CRANE SYSTEM

Harold S. Burt, Mendota, Ill., assignor to Conco Inc., Mendota, Ill.

Filed Sept. 27, 1971, Ser. No. 183,962

Int. Cl. B65g *1/06*

U.S. Cl. 214—16.4 A **2 Claims**



A method of building up an order of selected different product layers on a shipment pallet from a plurality of stored pallets each having a single product and with the stored pallets warehoused in storage bins and a stacker crane system for performing this function. A stacker crane has a platform movable to a position adjacent to a storage bin and a pallet handling structure then extracts a loaded pallet to a position on a platform of the stacker crane where product transfer structure can move products from the extracted pallet to a second pallet carried on the platform of the stacker crane. After the desired number of products are removed from the extracted pallet it is returned to the storage bin. The stacker crane and platform move to a desired number of locations to complete the loading of products on a shipment pallet. The shipment pallet when completed can be shipped or temporarily stored in a storage bin and an extracted pallet when empty can be delivered to a storage location.

3,782,565

AUTOMATED HANDLING SYSTEM FOR CONTAINER HELD MATERIAL

John T. Doran, 3707 Bradley Ln., Chevy Chase, Md., and John C. Maddock, 1404 Kersey Ln., Rockville, Md.

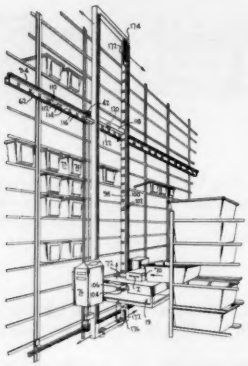
Filed Dec. 23, 1971, Ser. No. 211,337

Int. Cl. B65g *1/06*

U.S. Cl. 214—16.4 A **2 Claims**

A load bed is moved relative to a rack that stores material placed in containers or pallets. A control unit is provided to

guide the bed to a preselected container position and electromagnetic means attached to the bed attracts the container onto the bed. The bed is then returned to an initial station



where the container can be retrieved. The reverse process is employed to return the container in the rack. Similarly, fork members can be employed, in lieu of the electromagnetic means, to handle pallets.

3,782,566

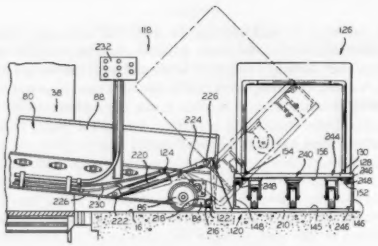
NUTTING TRUCK UNLOADING ARRANGEMENT FOR MAIL BAG LOADING APPARATUS

Joseph E. McWilliams, 1345 Canterbury Ln., Glenview, Ill.

Filed Nov. 10, 1972, Ser. No. 305,564

Int. Cl. B65g *67/08*

U.S. Cl. 214—41 **6 Claims**



A nutting truck unloading arrangement for mail bag handling apparatus of the type comprising an elongated wheeled conveyor assembly adapted to be moved between the loading dock and the vehicle being loaded to load bagged mail into the vehicle, in which the nutting truck unloading arrangement comprises a platform secured to the rearward end of said assembly for swinging movement about a horizontal axis from a nutting truck receiving position, adjacent the level of wheel support of the conveyor assembly, and an upwardly directed position, a load discharging arrangement operably associated with the platform for discharging the truck load onto the rearward end of the conveyor assembly, and means for releasably securing the nutting truck against tilting movement relative to the platform during discharge of its load.

3,782,567

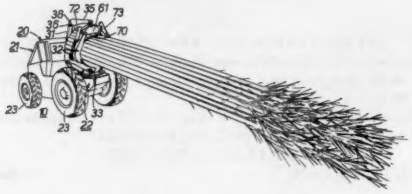
COMBINED BOOM, GRAPPLE AND BUNK ASSEMBLY

Algerd C. Likas, 835-56th Ave., Lachine, and Douglas D. Hamilton, 139 Lazard Ave., Mount Royal, Quebec, both of Canada

Continuation-in-part of Ser. No. 814,913, April 10, 1969, abandoned. This application May 21, 1971, Ser. No. 145,864

Int. Cl. B60p *1/48*

U.S. Cl. 214—77 **26 Claims**



A tree-handling apparatus including components therefor adapting a vehicle for skidding trees by grasping a group of such trees on the ground and lifting the grasped end to facilitate dragging the trees endwise. The vehicle is a mobile self-propelled articulated type having a boom, grapple and bunk assembly pivotally mounted thereon adjacent the trailing end thereof for movement about a substantially vertical axis. The boom, grapple and bunk assembly includes a C-shaped boom pivotally mounted on a base for movement about a horizontal axis, such base in turn being pivotally attached to the vehicle for movement about a vertical axis. The boom includes a primary boom member and a secondary boom member pivotally interconnected with power means for moving one relative to the other and for pivoting the main boom member about its pivotal mounting. A pair of bunks are attached to the boom, one of which engages the underside of a group of trees grasped by a grapple suspended from the secondary boom and which provides a counteracting couple tending to prevent pivoting of the primary boom member during skidding of the trees resulting from forces applied to the tree to drag the same, the trees being tightly grasped by the grapple. The other bunk engages the grapple adjacent the tip thereof to provide reactionary forces on the grapple counteracting forces applied to the grapple by the trees during dragging thereof, the dragging forces being transmitted to the vehicle through the attachment of the grapple to the boom and engagement of the grapple with the abutment on the vehicle. The grapple is constructed such that the bite of the jaw may be selectively varied in a grapple jaw-closed position thereby facilitating tightly grasping a wide variation in the size of the bundle of trees.

3,782,568

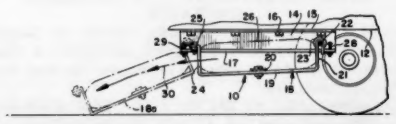
SPARE TIRE CARRIER

George L. Alexander, Rt. No. 3, Box 16, Stephenville, Tex.

Filed Sept. 14, 1972, Ser. No. 289,056

Int. Cl. B62d *43/00*

U.S. Cl. 214—454 **6 Claims**



A pair of spaced parallel channel beams are mounted longitudinally at the underside of a truck body with their channels

opposing each other. A tire rack is positioned between and supported by the channel beams and is provided at the front thereof with rollers which ride on lower flanges of the beams so that the rack may be moved between a forwardly slid elevated position and a rearwardly slid lowered position. A transverse bar is provided at the rear end of the rack and the end portions of the bar rest on the lower flanges of the beams to hold the rack in its elevated, forwardly slid position. Removable stops at the rear ends of the flanges are engageable with the end portions of the bar to prevent rearward movement of the rack.

3,782,569

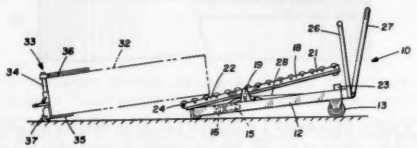
SELF UNLOADING CARRYING DOLLY

Thruman R. Montgomery, 2017 Hurstview Dr., Hurst, Tex.

Filed Mar. 20, 1972, Ser. No. 235,952

Int. Cl. B60p *1/28*

U.S. Cl. 214—506 **2 Claims**



A load of sections of wallboard are positioned flat upon the upper frame of the apparatus. A series of rollers mounted on the upper frame allow the load to be easily moved relative to the upper frame. The upper frame is connected to the base frame of the apparatus by a pair of hinges that are positioned offset from the central axis of the upper frame with the upper frame being supported by the hinges and a portion of the base frame that contacts the upper frame on the opposite side of the central axis from the pivots. Wheels connected to the base frame give the apparatus mobility. To unload the apparatus the wheels on one side of the apparatus are folded under and the load is moved relative to the upper frame until its center of gravity is on the unsupported portion of the upper frame. The upper frame pivots relative to the base frame and the load moves off of the apparatus onto the floor.

3,782,570

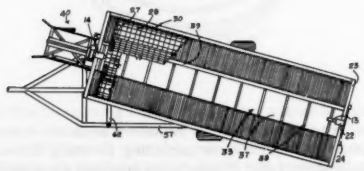
AUTOMATIC LOADING AND UNLOADING BALE WAGON

Lavern C. Sunderman, R.R. No. 3, Box 207, Clarinda, Iowa

Filed Nov. 1, 1971, Ser. No. 194,672

Int. Cl. B60p *1/36*

U.S. Cl. 214—519 **8 Claims**



A wagon has rotatable storage compartments for receiving rows of bales, an endless loading conveyor below the lowest position to which the compartments are successively rotated, and a pick-up endless conveyor pivotally mounted in front of the loading conveyor. The chassis of the wagon supporting the storage compartments is pivoted on a wheeled chassis. The two chasses are aligned for transportation or are positioned at an angle for field operation; in the latter position, the pick-up conveyor lifts bales that are along one side of the path traveled by a tractor connected to the draw bar of the wagon. The rotatable storage compartments comprise a rotor resembling an elongated paddle and a fixed support that is semi-circular in cross section; the fixed support is mounted slightly below the positions of the compartments while their open sides are facing downwardly and support the bales until the compartments are rotated until the bales are supported only by the rotor.

3,782,571

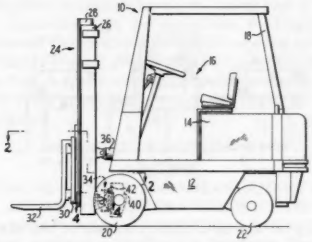
LIFT TRUCK MAST-MOUNTING ARRANGEMENT

James W. Murphy, Wickliffe; Robert J. Frantz, Brooklyn, and Harold V. Hildebrecht, Cleveland, all of Ohio, assignors to Towmotor Corporation, Cleveland, Ohio

Filed Apr. 24, 1972, Ser. No. 246,782

Int. Cl. B66f *9/20*

U.S. Cl. 214—674 **12 Claims**



A mounting device for a tiltable lift truck mast in the form of a pair of bearing-supported pivot pins which are engaged in upwardly-opening, concave bearing surfaces of corresponding hanger brackets is provided. Each hanger bracket further includes a retainer in the form of a bolt and sleeve having a tapered end portion. Each retainer is cooperable with an annular groove in a respective pivot pin to prevent both rotational as well as axial movement of the pin with respect to its hanger bracket. Alternatively, pin movement is prevented by a bolt extending through a transverse bore in the pin.

3,782,572

PUBLIC WORKS MACHINE

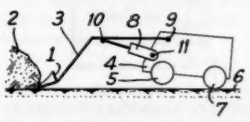
Joel P. Gautier, Le Plessis-Belleville, France, assignor to Societe Anonyme Poclain, Oise, France

Filed Mar. 16, 1972, Ser. No. 235,442

Claims priority, application France, Mar. 22, 1971, 7110033

Int. Cl. E02f *3/86*

U.S. Cl. 214—762 **11 Claims**



This invention relates to a method for adjusting the position of the working equipment with which a public works machine is provided, which is constituted by a group of front drive wheels and a group of rear drive wheels, by said working

equipment which is articulated to the frame of the machine, whilst a double-effect drive member is coupled between the working equipment and the frame and comprises two chambers connected selectively to a source of pressurised fluid and to a discharge tank or isolated from said fluid sources and discharge tank, according to which method the working equipment is disposed in a predetermined position, isolating said two chambers, and the displacement of the machine is controlled, wherein the position of the working equipment subsequent to the predetermined position is a function of the values of the resistant torques of the groups of front and rear wheels. It also relates to a public works machine applying the method as mentioned hereinabove.

3,782,573

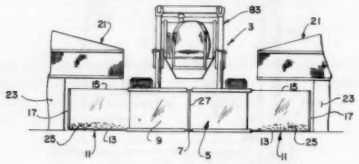
BUCKET FOR USE ON A LOADER, TRACTOR OR THE LIKE

James R. Garwood, Troy, Ill., assignor to National Oats Company, Inc., East St. Louis, Ill.

Filed May 28, 1971, Ser. No. 147,872

Int. Cl. B66f *9/00*

U.S. Cl. 214—768 **12 Claims**



A bucket for use on a loader, tractor or the like, having laterally extensible and retractible side sections, each of which is movable laterally in and out by means of a hydraulic cylinder on the back of the bucket, each cylinder being operable independently of the other for operating either side section independently of the other.

3,782,574

TAMPERPROOF CLOSURE FOR CONTAINERS

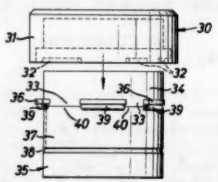
Roy William Rumble, deceased, late of London, England (by Zilla Kathleen Rumble, legal representative), assignor to Zilla Kathleen Rumble, London, England

Filed Aug. 17, 1971, Ser. No. 172,436

Claims priority, application Great Britain, Aug. 20, 1970, 40,079/70; Nov. 10, 1970, 53,460/70; Feb. 1, 1971, 3,634/71

Int. Cl. A61j *1/00;* **B65d** *55/02*

U.S. Cl. 215—9 **4 Claims**



In order to prevent ready access or accidental opening of containers, the closure cap is formed with a plurality of projections or ridges which are of unequal circumferential length and are spaced apart by unequal circumferential distances. As the cap is fitted to the containers the projections pass through corresponding slots formed on the wall of the container. Thereafter the cap is rotated to a random position to prevent ready access. An independently rotatable locking ring having similar slots may be provided for greater security.

3,782,575

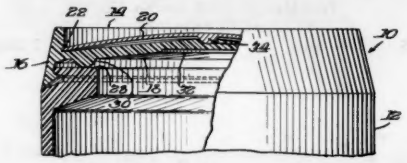
SAFETY CLOSURE

Thomas A. Braun, 916 Whitegate Dr., Mt. Prospect, Ill.

Filed Mar. 6, 1972, Ser. No. 232,002

Int. Cl. B65d *55/02*

U.S. Cl. 215—9 **10 Claims**



A safety closure for a container having an annular lip and a shoulder adjacent the lip. The closure includes a unitary cap, having a rim and a dome, and a snap-action disc which is coupled to the cap. The rim of the unitary cap includes a locking projection which engages the lip on the container. The closure is placed in an unlocked position by applying a downward force to the snap-action disc to change the disc from a convex position to a concave position.

3,782,576

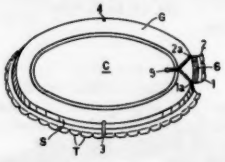
VACUUM CLOSURE FOR A JAR OR CONTAINER, ESPECIALLY A GLASS PRESERVING JAR

Izaak Johannes Jacquemijns, Epse, Netherlands, assignor to Thomassen & Drijver-Verblifa N.V., Deventer, Zutphenseweg, Netherlands

Filed Apr. 13, 1971, Ser. No. 133,680

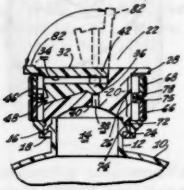
Int. Cl. B65d *41/20*

U.S. Cl. 215—42 **4 Claims**



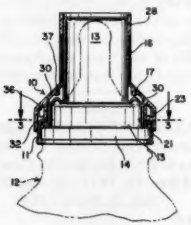
Vacuum closure for a jar or container, especially for a glass preserving jar, said closure consisting of easily deformable metal, the skirt of said closure being provided along the lower edge with inwardly directed teeth projections engaging the mouth of the jar to be closed, said skirt being provided from the lower edge of four vertical score lines, cuts or slits in or between the teeth two of these score lines, cuts or slits being arranged diametrically with respect to each other, and the two other score lines, cuts or slits arranged at a comparatively small distance, defining a tab.

3,782,577
COMBINATION LOCKABLE CLOSURE SPOUT
John Levey, Westlake Village, Calif., assignor to Sandra Levey Miller, Los Angeles and Robert Levey, Encino, Calif., part interest to each
Filed Mar. 27, 1972, Ser. No. 238,112
Int. Cl. B65d *55/14*
U.S. Cl. 215—98 8 Claims



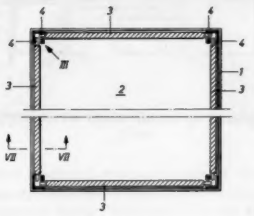
A container closure having a pouring spout with a passageway leading from the inside of the container to permit pouring when a portion of the closure, which portion is pivotable relative to the remainder of the closure, is in a first position; but which passageway is blocked when said portion of the closure is in a second position. A plurality of annular coaxially disposed rotatable locking elements are provided to retain said portion of the closure in its second position unless said annular elements are themselves disposed in indexed registering positions.

3,782,578
OPENER FOR DISPOSABLE CLOSURE
Gene Ballin, 159 Main St., Hempstead, N.Y.
Filed Apr. 28, 1972, Ser. No. 248,635
Int. Cl. B65d *41/32*
U.S. Cl. 215—46 A 11 Claims



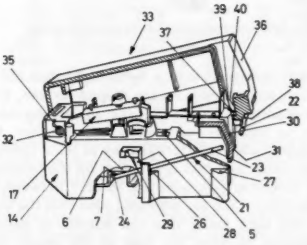
A device for opening a closure cap along a score line around the base of an annular channel without piercing the cap includes a collar which rotatably and slidably engages the cap and includes a peripheral wall provided with circumferentially spaced depending arcuate teeth of greater thickness than the channel and stop elements which limit the downward movement of the device on the cap. The device is pressed downwardly and rotated so that the teeth wedge between and spread the channel walls to sever the closure along the full length of the score line, the piercing of the channel by the teeth being prevented by the stop elements.

3,782,579
COLLAPSIBLE RECEPTACLE
Walther Zarges, Maria-Antonien-Weg 6, Murnau/Obb., Germany
Filed Sept. 28, 1971, Ser. No. 184,502
Claims priority, application Germany, Oct. 1, 1970, P 20 48 382.3
Int. Cl. B65d *7/26*
U.S. Cl. 220—4 F 22 Claims



A collapsible receptacle having the lower end of the walls hingedly connected with the base frame by hinge bolts inserted into slot-like oblong holes which are open at the upper end and having a length greater than the cross-sectional size of the hinge bolt. A device is associated with the upper end opening for blocking or permitting removal of the hinge bolt from the oblong hole.

3,782,580
ELECTRICAL CONNECTING ARRANGEMENT FOR AN ENCASED REFRIGERATING MACHINE
Hans Christian Pedersen, and Erik Nielsen, both of Nordborg, Denmark, assignors to Danfoss A/S, Nordborg, Denmark
Filed Nov. 12, 1971, Ser. No. 198,326
Claims priority, application Germany, Nov. 10, 1970, P 20 55 183.1
Int. Cl. B65d *7/24*, *45/06*
U.S. Cl. 220—4 B 2 Claims

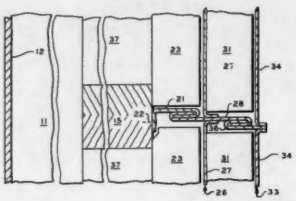


The invention relates to an electrical junction box having a base, a frame and a cover as the three basic parts thereof. A U-shaped wire stirrup engages and cooperates with camming surfaces on the frame and cover in a manner so as to permit the easy and convenient locking together of the three basic members of the junction box.

3,782,581
FLUID CONTAINMENT SYSTEM
Charles W. Beazer, Bartlesville, Okla., assignor to Phillips Petroleum Company, Bartlesville, Okla.
Filed Dec. 27, 1971, Ser. No. 211,860
Int. Cl. B65d *25/18*
U.S. Cl. 220—9 A 4 Claims

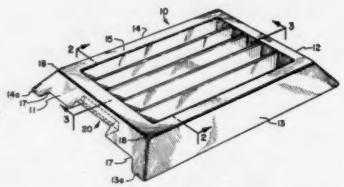
In a fluid container comprising inner and outer metal mem-

branes facing walls of a plurality of rigid wall members, vapor passageways are formed in the wall members. The members



can be supported by metal straps which support the membranes.

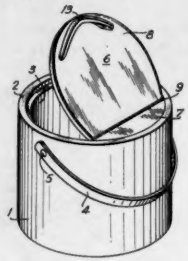
3,782,582
CORE TRAY
Lyle Dean Lybbert, and Daniel H. Atwood, both of Magrath, Alberta, Canada, assignors to Daniel H. Atwood, Magrath, Alberta, Canada
Filed Apr. 26, 1971, Ser. No. 137,170
Int. Cl. A47g *19/00*
U.S. Cl. 220—23.6 **4 Claims**



A core tray constructed of a lightweight material with individual flutes each having an arc shaped bottom, to accommodate a cylindrical core sample, and upstanding side and divider walls, to separate one sample from another. The core tray has sloping side walls terminating at their upper ends in rounded shoulders and legs are formed on the bottoms of the side walls. Rounded junctions are formed between the legs and tray bottom, which are arranged such that the top of one core tray will slide easily into the bottom of another tray stacked thereon between the legs of the upper tray. The rounded shoulder at the top of one tray fits closely into the rounded junction of another tray, and handles inset into the ends of each tray are constructed to have a finger ridge therein by which a person may securely grasp the trays during handling.

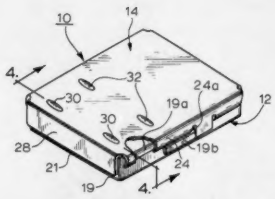
3,782,583
COVERED ICE BUCKET
Henry Abbey, 711 Shore Rd., Long Beach, N.Y.
Filed Dec. 2, 1971, Ser. No. 204,178
Int. Cl. B65d *43/16, 51/10*
U.S. Cl. 220—31 S **10 Claims**

A cover has two segments one of which is affixed to a container in the area of its rim. A hinge hingedly affixes the segments to each other in a manner whereby the other of the segments is freely pivotable about the one of the segments from a



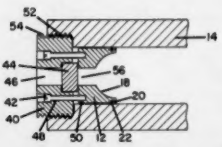
position in which the container is closed by the cover to a position at an obtuse angle with the one of the segments in which the container is open to a maximum.

3,782,584
PILL BOX HAVING SAFETY SLIDING CLOSURE
Donald R. Swenson, 408 Chelsea Ave., Rockford, Ill., and Philip J. Rich, 10351 N. Second St., Roscoe, Ill.
Filed June 9, 1972, Ser. No. 261,403
Int. Cl. B65d *43/12*
U.S. Cl. 220—41 **17 Claims**



A pill box or similar article includes a body in the form of an open topped rectangular enclosure and a top cover slidably fitted to the body. Wing portions disposed on opposite side walls of the body are resiliently biased outwardly from the side walls to intercept abutments on the cover and normally block movement of the cover from its closed position. The box is opened only by depressing the wing portions into engagement with the side walls of the body simultaneously with a sliding motion of the cover. Other features are disclosed.

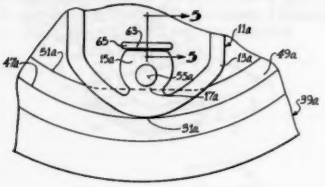
3,782,585
CONCAVE CLOSURE SEAL
Gary W. Rosenwald, and Samuel C. Swift, both of Tulsa, Okla., assignors to Cities Service Oil Company, Tulsa, Okla.
Filed Dec. 10, 1971, Ser. No. 206,846
Int. Cl. B65d *53/00*
U.S. Cl. 220—46 P **2 Claims**



An apparatus forming a closure seal especially adapted for utilization wherein high internal pressures are to be contained

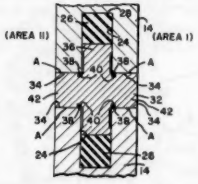
within a cylindrical high pressure cell. The closure seal is formed of a concave inner cylinder which readily transforms the pressures exerted within the cell to lateral forces which are exerted between the concave closure seal and the cylinder walls of the cell.

3,782,586
EASY OPENING CONTAINER WALL
Omar L. Brown, Kettering, Ohio, assignor to Ermal C. Fraze, Dayton, Ohio
Continuation-in-part of Ser. No. 64,291, Aug. 17, 1970. This application Oct. 28, 1971, Ser. No. 193,437
Int. Cl. B65d *17/20*
U.S. Cl. 220—54 **2 Claims**



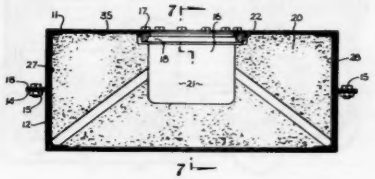
An easy opening container wall comprising a container wall of sheet material, a line of weakness in the container wall defining a tear portion, and a tab including an attachment portion and a tab body joined to the attachment portion. The attachment portion is attached to the tear portion so that the tab can be manipulated to initiate rupture of the sheet material along the line of weakness. A zone of the container is formed in close proximity to a segment of the peripheral edge of the attachment portion and cooperates therewith to retain the tab against pivotal movement about its point of attachment to the tear portion.

3,782,587
SEALING MEANS
Jack Brothers, Panama City, Fla., assignor to Jerry Pentel, Roxbury Township, R.D. Flanders, N.J., a part interest
Filed Dec. 6, 1972, Ser. No. 312,619
Int. Cl. B65d *53/00*
U.S. Cl. 220—46 R **8 Claims**



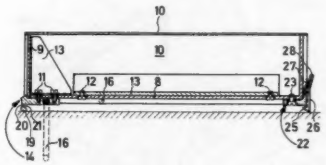
The means seal a fluid joint, formed of interfacing elements of indeterminate configuration along the joint, where the elements have recesses formed in the interfacing surfaces, by defining a sealing element of ductile material to conform to the indeterminate configuration by die-cutting the material to separate out a sealing sub-element which cooperates with the interfacing surfaces, and collateral resilient seals, the latter under a constant, high pressure constraint, to define a plurality of compliant and resilient sealing surfaces.

3,782,588
FUEL STORAGE CELL
Donn W. Allen, 5730 Bankfield Ave., Culver City, Calif.
Filed Feb. 8, 1971, Ser. No. 113,408. The portion of the term of this patent subsequent to Feb. 9, 1988, has been disclaimed.
Int. Cl. B65d *25/14, 25/34*
U.S. Cl. 220—88 R **11 Claims**



The fuel cell disclosed herein includes a shaped, porous core having an approximate 97 percent void which is covered by an impregnated fabric material so as to adhere to the periphery of the core and to seal the fabric material. The covered core or bladder has mounting fixtures adapted to detachably connect the fuel cell to supporting structure.

3,782,589
STACKABLE HOUSINGS FOR ELECTRONIC EQUIPMENT
Karl Lang, Uerikon, and Hans Steiner, Greifensee, both of Switzerland, assignors to Mettler Instrumente AG, Zurich, Switzerland
Filed May 21, 1971, Ser. No. 145,723
Claims priority, application Switzerland, June 18, 1970, 8884/70
Int. Cl. B65d *21/02*
U.S. Cl. 220—97 R **3 Claims**



A stackable housing for electronic equipment and the like, characterised in that a first housing is provided at its bottom with shoulder means adapted for pivotal connection with corresponding means on the upper forward edge portion of a second housing arranged therebeneath. Snap-lock means are provided for removably connecting another lower portion of the first housing with another upper portion of the second housing, thereby locking said housings against sliding movement relative to each other.

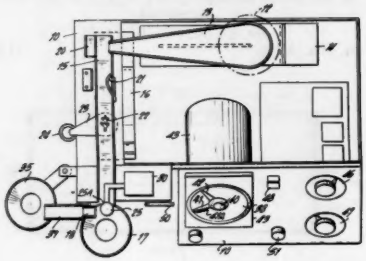
ERRATUM

For Class 220—31 R see:
Patent No. 3,782,592

3,782,590
PILL COUNTING MACHINE
George J. Apfel, 105 Rivervale Rd., Park Ridge, N.J.
Filed May 18, 1972, Ser. No. 254,619
Int. Cl. B65d *57/20*
U.S. Cl. 221—13 **6 Claims**

A pill counting machine in which a plurality of pills are moved by elongated vibrating troughs which first form a single

line of pills, then remove the dust, and finally pass the pills through a sensing station where they are counted. A diverting



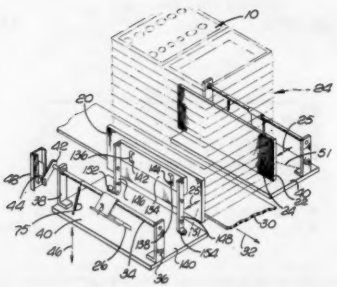
vane adjacent the sensing station switches the direction of the stream of pills into a storage means after the desired number of pills has passed the sensing station.

3,782,591

CARTON DISPENSER CAMMING SYSTEM

Harry L. Fries, Yucaiba, Calif., assignor to Dolco Packaging Corporation, Burbank, Calif.

Filed July 17, 1972, Ser. No. 272,600
Int. Cl. B23q *7/04*; **B65h** *1/06*
U.S. Cl. 221—213 **5 Claims**



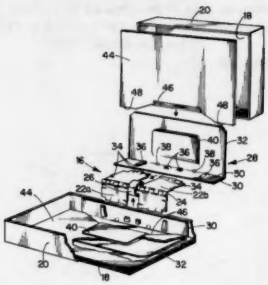
A dispenser camming system for carton members which engages and lowers a member from a first point to a second point. A toothed pick is raised to first engage the member at the first point, and releases the member when lowered to the second point. The toothed pick is rotated via linkage to a cam follower which tracks a cam surface to reciprocate the pick out of and into an engaging configuration as the pick is raised and lowered. The cam surface is formed to delay movement of the pick from a non-engaging position to the engaging position. Reverse-directional movement of the cam follower in the path of the cam is prevented by means of a spring member. The disposition of the toothed pick is adjustable so as to adjust the pressure applied by it to the member. A pair of gripping surfaces are arranged to secure a plurality of members therebetween, releasing the member for engagement and separation of one of the members by the toothed pick. Means are provided for predeterminedly adjusting the spacing between the toothed pick and the bottom of the gripping surfaces so as to accommodate the camming system to different depth members.

3,782,592

HINGE MOUNTING MEANS

George G. Bergh, Plainsville, and Robert G. Bergh, North Attleboro, both of Mass., assignors to Bergh Bros. Co., Inc., Attleboro Falls, Mass.

Continuation-in-part of Ser. No. 25,662, April 6, 1970, abandoned. This application Mar. 18, 1971, Ser. No. 125,760
Int. Cl. B65d *43/18, 5/66*
U.S. Cl. 220—31 R **7 Claims**



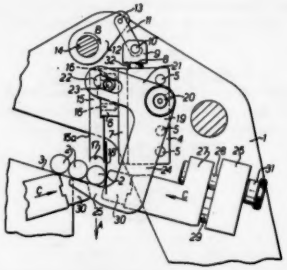
Means for mounting a hinge leaf on a container component, for example, the base or lid section of a box. The means includes a hinge receiving element, one end or section of which is adapted for direct attachment to the hinge. The other end or section of the hinge receiving element includes a tongue member which cooperates with the said other end or section to slidably receive and hold therebetween a mounting member which is included as a part of the container component.

3,782,593

BAR HOLDER ARRANGEMENT FOR AN AUTOMATIC MACHINE TOOL

Ewart H. Doe, Houghton, near Stockbridge, England, assignor to Twyford Moors (Aircraft & Engineering) Limited, Eastleigh, Hampshire, England

Filed July 20, 1971, Ser. No. 164,403
Claims priority, application Great Britain, July 30, 1970, 36,953/70; Oct. 22, 1970, 50,306/70
Int. Cl. B65h *3/50*
U.S. Cl. 221—248 **15 Claims**



A bar holder arrangement for holding bar stock material to be fed to an automatic machine tool. A slide presses a length of bar stock material from a magazine into a bar holder. A retaining member cooperates with the slide in a manner such that the retaining member does not move from a position in which it prevents movement of the length of bar stock materi-

al into the bar holder until the slide member has moved to a position in which movement of the next length of bar stock material in the magazine is prevented by the slide member thereby preventing double loading. The bar holder arrangement may include more than one bar holder in an indexable reel, means permitting the arrangement to be quickly reset to accommodate a change in diameter of the bar stock material being used, means for preventing indexing of the reel if a bar holder has not been closed and means for sensing whether or not bar stock material in a bar holder has been completely used up.

3,782,594

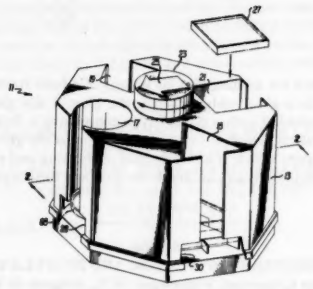
CHIP HOLDER AND DISPENSER

Michael Langieri, Jr., Butler, N.J., and Michael Meyers, Munsey, N.Y., assignors to Questor Corporation, Toledo, Ohio

Filed Feb. 16, 1972, Ser. No. 226,678

Int. Cl. B65q *59/00*

U.S. Cl. 221—274 **1 Claim**



A rack having vertical chutes therein for accepting a column of rigid chips. A slot is provided at the lower end of each chute which is of a dimension such that the chip may pass through the rack. An internal compartment within the rack contains an ejecting mechanism which mates with slot in the compartment opposite the slot in the chute. A button extends outwardly from the compartment and is spring biased in an extended position. Manual depression of the button overcomes the spring bias and moves the ejector into contact with the chip so as to force it from the rack. The button has indicia thereon and is rotatable with the compartment. The indicia clearly shows with which chute the ejector mechanism is aligned.

3,782,595

DISPENSING OF VISCOUS MATERIAL

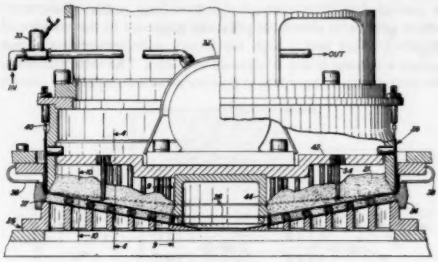
Albert H. Haller, Clark, N.J.; John J. Larkin, Little Neck, N.Y., and Richard P. Walters, Watchung, N.J., assignors to Western Electric Corporation, New York, N.Y.

Filed Sept. 7, 1971, Ser. No. 178,133

Int. Cl. H01m *35/26*

U.S. Cl. 222—1 **7 Claims**

A dispensing mechanism places a predetermined quantity of a highly viscous paste into successive articles, such as battery grids. A constant level of the paste is maintained in a cylindrical dispensing cup of the mechanism, which has a grid-like bottom formed of radially disposed wires. The paste flows out of the grid-like bottom of the cup during vibration of the cup.



When the vibration stops, the flow of the paste through the wires also stops. Thus, a convenient mechanism is provided for controlling the amount of paste dispensed.

3,782,596

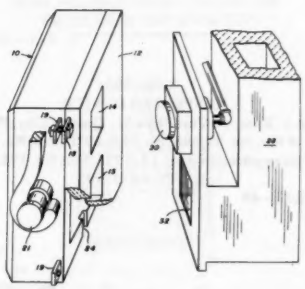
METHOD OF PREHEATING A TUNDISH

David K. Griffiths, Penn Hills, Pa., assignor to United States Steel Corporation, Pittsburgh, Pa.

Division of Ser. No. 48,353, June 22, 1970. This application May 2, 1972, Ser. No. 249,645

Int. Cl. B22d *37/00*

U.S. Cl. 222—1 **2 Claims**



A tundish which is capable of draining molten oxide and skull material therefrom while being preheated, and a method of preheating the tundish which prevents plugging of the teeming nozzle.

3,782,597

GASOLINE DISPENSING SYSTEM HAVING CENTRAL CONTROL STATION AND A PLURALITY OF MULTI-GRADE GASOLINE PUMPS

Bonde Knut Hansen, and Leif Gunnar Persson, both of Malmo, Sweden, assignors to AB Ljungmans Verkstader, Malmo, Sweden

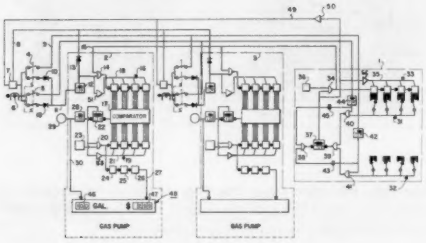
Filed June 22, 1972, Ser. No. 265,406

Int. Cl. B67d *5/30*

U.S. Cl. 222—28 **13 Claims**

A central control station is used to provide multi-level remote price information to a plurality of multi-grade gasoline dispensing pumps. The control station is reset to zero in coincidence with the completion of transmission of data to the individual pumps. The pumps are interconnected to prevent one

pump interfering with the other pump during the transmission of information from the control station to a given pump. Each pump has a first group of decade counters to store the received price information in digital form. A multiplier circuit is provided within each pump including a fuel flowmeter which generates electrical pulses in response to the volume of dispensed fuel and a high frequency pulse generator which pulses a second group of decade counters. The information in the first group of counters is compared in a comparator circuit



to the information in the second group of counters. Each time the information in the two groups of counters is identical, the comparator disables the output of the high frequency generator. No additional pulses are transmitted to the second group of counters until another pulse is received from the fuel flowmeter. The same number of pulses which are coupled to the second group of counters is coupled through a decade counter division circuit to an accumulator and read-out device, the final number in the accumulator device being the product of the fuel flow and the price per unit of fuel dispensed.

3,782,598

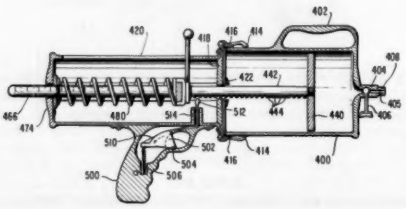
DISPENSER DEVICE

Napoleon A. Basa, 46 Cordillera St., Quezon City, Philippines

Division of Ser. No. 37,685, May 15, 1970, Pat. No. 3,649,471. This application Aug. 13, 1971, Ser. No. 171,683

Int. Cl. B67d *5/42*

U.S. Cl. 222—49 **10 Claims**



A dispenser device includes a hollow container portion for flowable material and has an outlet means. Plunger means is slidably mounted within the container portion and spring means normally urges the plunger means toward the outlet means. A cock arm is connected to the plunger means and extends through slot means formed in a housing means. The slot means has a part extending longitudinally of the housing and a part extending laterally of the housing. A manually operated control means is provided for controlling movement of the plunger.

3,782,599

DEVICE FOR FEEDING GLUE FROM A GLUE CONTAINER TO A GLUE APPLYING HEAD

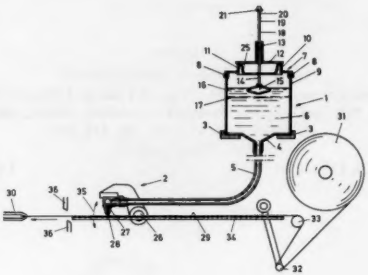
Pierre Luginbuhl, Nauhausen am Rheinfall, Switzerland, assignor to Schweizerische Industrie-Gesellschaft, Neuhausen am Rheinfall, Switzerland

Filed Jan. 19, 1972, Ser. No. 219,042

Claims priority, application Switzerland, Feb. 10, 1971, 1982/71

Int. Cl. B67d *5/22*; **G01f** *23/06*

U.S. Cl. 222—51 **5 Claims**



In a device for feeding glue by means of a hose from a glue container to a glue applying head, the glue in the glue container is provided with a cover layer comprising a fluid, such as a mineral oil, which is inert with relation to the glue, has a specific gravity which is less than that of the glue and repulses said glue, so that no air can touch the glue and form a glue skin thereon.

3,782,600

CO-DISPENSER APPLICATOR AND SPATULA CAP

Peter Spiros Columbus, Whitestone, N.Y., assignor to Borden, Inc., Columbus, Ohio

Filed June 13, 1972, Ser. No. 262,346

Int. Cl. B65d *35/22*

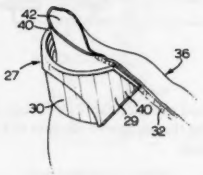
U.S. Cl. 222—94 **9 Claims**

A co-dispenser applicator is common to both a tube of epoxy cement and a tube of hardener. The two materials are discharged through two separate spaced spouts in the co-dispenser applicator. The cap which seals the two outlet spouts of the co-dispenser applicator has attached thereto a spatula. The spatula is useful for mixing and applying the epoxy cement and the hardener which has previously been dispensed. By means of the present device, many of the advantages inherent in one package adhesives can now be imparted to two package adhesives.

3,782,601
BI-STABLE CLOSURE FOR FLEXIBLE BAGS

Alois A. Krawagna, 70 Delisle Ave., Apt. 410, Toronto, Ontario, Canada

Filed Apr. 13, 1972, Ser. No. 243,761
Claims priority, application Great Britain, Apr. 16, 1971, 9,620/71
Int. Cl. B65d *35/08*
U.S. Cl. 222—107 12 Claims

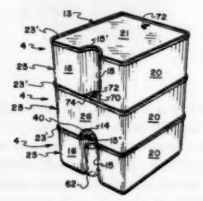


This invention provides a snap-closure for flexible bags, including two curved portions linked through a flexible, integral web. The respective curvatures of the portions and of the web are such that one of the portions can be flexed through a dead-center position to a position of inverted curvature, being held in either position by the resilience of the other portion.

3,782,602
FROZEN WATER CONTAINERS WITH LIQUID DISPENSER FOR CAMPING

Michael E. Page, 4243 W. 3250 South, Granger, Utah

Filed Mar. 14, 1973, Ser. No. 340,999
Int. Cl. B67d *5/60*
U.S. Cl. 222—143 2 Claims

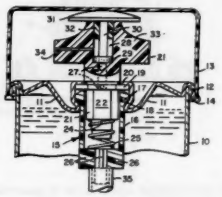


A thin wall open top container comprised of a rectangular receptacle formed of a shaped retaining plastic material, a thin wall lid formed of plastic material having a downwardly directed female force fit fastener around the entire periphery of the lid, the receptacle having an upwardly extending male bead edge over which the female fastener is forced to create an air-tight releasable union. Thus, each such container may be easily filled with water and the water readily frozen at home. Each frozen container is then used to cool food in a camper or the like and, when the water melts, it is a source of potable liquid. The bottom of the container is of reduced dimensions to enable stacking of one said container above another in stable fashion. A cavity area located at the edge intersection where the front wall joins the bottom conceals a dispensing spout with valve for dispensing the water once it has melted and a vertical recess in the rear wall of the container allows placement of a glass or the like therein directly below the spout of a second, top container whereby the glass may be filled with melted water and used for human consumption.

3,782,603
VALVE MECHANISM

John A. McConnell, 5860 Robertson Ave., and Everett W. Williamson, 36338 Concord Pl., both of Newark, Calif.

Filed Jan. 28, 1972, Ser. No. 221,586
Int. Cl. B67d *5/32*
U.S. Cl. 222—153 4 Claims

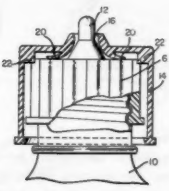


An auxiliary valve for aerosol dispenser cans provided thereto so that small children cannot dispense material from the can simply by applying pressure to the top of the valve mechanism. The auxiliary valve is positioned above the aerosol dispensing valve and it can be opened only by prying the actuating mechanism thereof upward with respect to the dispensing valve. Thereafter the dispensing valve is operated by pressing on its actuating mechanism.

3,782,604
SCREW CAP WITH SAFETY COVER

Milton Kessler, 6690 Harrington Ave., Youngstown, Ohio

Filed Jan. 20, 1972, Ser. No. 219,298
Int. Cl. B67b *5/00*; B67d *5/32*
U.S. Cl. 222—153 1 Claim



To render screw-capped bottles containing dangerous substances safe from children, a unitary plastic cover is provided which fits loosely rotatably over the normal screw cap and prevents unscrewing of the cap unless a considerable downward pressure is exerted against the resilient element of the cover to force a portion of the cover into engagement with a portion of the screw cap so that the cap can be unscrewed.

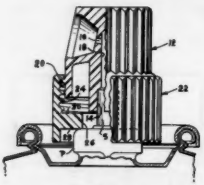
3,782,605
CHILDPROOF AEROSOL ACTUATOR CONSISTING OF TWO MEMBERS, OPERATIVE BY RELATIVELY ROTATING THE TWO MEMBERS

William E. Messenger, Fremont, N.H., assignor to Scovill Manufacturing Company, Waterbury, Conn.

Filed Dec. 18, 1972, Ser. No. 316,355
Int. Cl. B67b *5/00*
U.S. Cl. 222—153 4 Claims

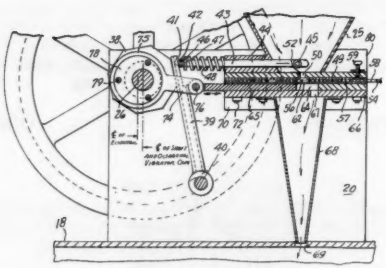
A childproof aerosol actuator comprises an actuating button having external threads and a locking collar having

cooperating internal threads. In use, the collar is screwed downwardly to abut the aerosol container and block operation



of the valve. Two-handed operation is necessary because friction between the threads of the button and collar exceeds friction between the button and stem.

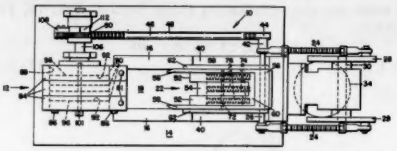
3,782,606
ANT POISON DISTRIBUTING APPARATUS
Lee Maxie, R.F.D. Box 200, Rayville, La.
Filed Oct. 27, 1972, Ser. No. 301,312
Int. Cl. G01f *11/14*
U.S. Cl. 222—244 **6 Claims**



An ant poison distributer adapted to be mounted on a grass clipping machine over the rotating blade of the machine so as to drop ant poison granules onto the blade for distribution. The distributor has a hopper with an agitator therein and a series of apertured plates defining a metering passage, with the discharge aperture of the lowermost plate offset relative to the registering apertures of the other plates. A reciprocating push bar moves the granules forwardly in the metering passage toward the offset aperture in the lowermost plate while closing off the supply, allowing the granules to drop through onto the rotating clipper blade. One of the metering plates has apertures of different sizes and this plate can be adjusted to move a selected aperture into registry with the other apertures so as to provide a desired discharge volume of granules.

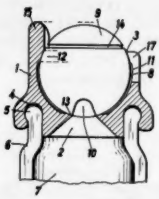
3,782,607
DISPENSING MACHINE FOR FOOD PRODUCTS
Arnold Soodalter, 134 Tanglewood Dr., Longmeadow, Mass.
Continuation-in-part of Ser. No. 126,850, March 22, 1971, abandoned. This application Feb. 1, 1972, Ser. No. 222,559
Int. Cl. G01f *11/04*
U.S. Cl. 222—249 **2 Claims**

Apparatus for dispensing a portioned food product comprising a product supply and pressure means including a chamber for the food product, primary and secondary rams for exerting pressure upon the food product, product metering means communicating with the chamber and aligned with at least one of the primary and secondary rams for accepting a measured



amount of the food product expressed from the chamber, and means for ejecting the measured amount of food product from the metering means.

3,782,608
SAFETY CLOSURE FOR A CONTAINER
Urs Schneider, Seedorffeld 6, Munchenbuchsee, Switzerland
Filed Feb. 29, 1972, Ser. No. 230,244
Claims priority, application Switzerland, Mar. 19, 1971, 11960/71
Int. Cl. G01f *11/10*
U.S. Cl. 222—368 **6 Claims**

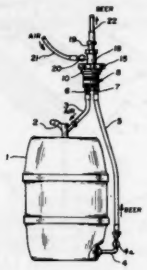


A closure having a cap for the neck of a container, for medicines, such as pills or the like, having a central socket and an entry aperture connecting the socket in communication with the interior of the container and having a removal aperture connecting the socket in communication with the exterior air space. A spherical closure ball rotatably retained in the socket so it is universally rotatable in all directions and having a depression in one surface portion thereof of a size to receive a single dose of the contents of the container and being successively rotatable into registration with the entry aperture to receive a single dose from the container, and into registration with the removal aperture for removal of the single dose from the container, the depression in the ball also being rotatable to a multiplicity of other positions in the socket where it is covered by the housing and prevents removal of the container contents.

3,782,609
KEG TAPPING ASSEMBLY
Homer R. Zucconi, 419 Speer St., N. Belle Vernon, Pa.
Filed Oct. 20, 1971, Ser. No. 190,796
Int. Cl. B65d *83/00*
U.S. Cl. 222—394 **1 Claim**

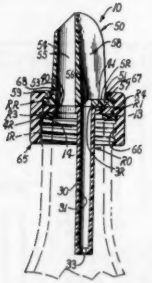
A keg tapping assembly comprising a tavern unit having two prongs which are sleeve-like with tapered ends to unseat the two spring closed valves of a permanently attached keg unit detachably connected to the top central hole of a keg, upon insertion into the keg unit. The invention embodies an at-

tachment having two bores through which said prongs are detachably fitted and having serrated terminal connections onto which hoses may be slip-fitted for attachment, respectively, to a tap rod insertable in the top center opening and to



a valved outlet connection at the bottom of the keg. By simply unplugging the tavern unit from the keg unit and plugging it into said attachment it is selectively usable on either a conventional single connection tap or on the older double connection tap.

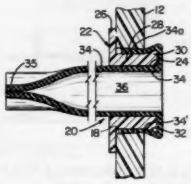
3,782,610
BOTTLE VALVE
Lloyd H. Gilbert, 1802 Tulare, Fresno, Calif.
Filed July 6, 1972, Ser. No. 269,474
Int. Cl. B65d *25/42*
U.S. Cl. 222—484 **2 Claims**



A valve for a bottle having a port, the valve having a body adapted to be received in sealing relation on the port, the body having a passage extending therethrough in communication with the port; a closure rotationally mounted in sealing relation on the body, the closure having a passage registrable with the passage of the body; and a follower and cam way individually mounted on and interconnecting the closure and the body to limit rotation of the closure between an opened position in which the passages are in registration and a closed position in which the passage of the body is sealed by the closure.

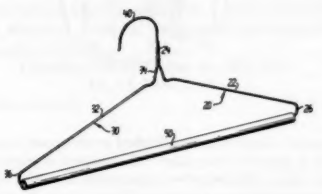
3,782,611
DISPENSING CLOSURE ASSEMBLY FOR CONTAINERS
Herbert J. Wanderer, Denver, Colo., assignor to Denver Plastics, Inc., Lakewood, Colo.
Filed Nov. 15, 1971, Ser. No. 198,684
Int. Cl. B65d *5/74*
U.S. Cl. 222—569 **15 Claims**

A removable dispensing closure assembly for an opening in the wall of a container includes an integral plug with a longitudinal passage having an annular flange portion at the outer end adapted to abut against the outer surface of the container wall together with an intermediate portion and an annular lip portion at the inner end sized to insert into the container opening. A flexible tubular member passes through the plug passage and has a normally closed outer end and an open inner end everted over the annular lip portion and back along



the periphery of the intermediate portion to form an enlarged flexible end portion having an outer dimension larger than the internal dimension of the container opening whereby the closure assembly can be forcefully inserted into the container opening to effect a fluid-tight seal. Dispensing through the tubular member is effected by selectively opening and closing the passage of the tubular member externally of the container.

3,782,612
GARMENT HANGER
Dayton W. Barnes, and Robert D. Chiles, both of Greeneville, Tenn., assignors to Ja-San, Inc., Greeneville, Tenn.
Filed July 11, 1972, Ser. No. 270,672
Int. Cl. A41d *27/22*
U.S. Cl. 223—85 **8 Claims**



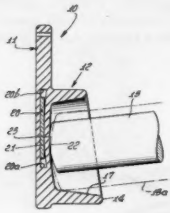
A strut-type garment hanger is disclosed comprising two different length strands of wire or similar material, the strands being entwined and biased to create a longitudinal flexure within a strand holding tube and the overall hanger to give rigidity.

3,782,613
FISHING ROD HOLDER
Marvin A. Davis, 66 Ocean View, Apt. 33, Santa Barbara, Calif.
Filed Apr. 19, 1972, Ser. No. 245,544
Int. Cl. A45f *5/00*
U.S. Cl. 224—5 E **1 Claim**

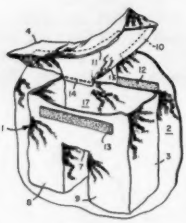
A fishing rod holder comprises:

a. an integral base pad and cup consisting of molded elastomeric material, the cup projecting at one side of the base pad and sized to receive the handle end of a fishing rod,

b. the base pad containing an internal slot located inwardly of the cup and spaced therefrom, the slot extending transversely of the cup to receive a fisherman's belt for securing the base pad to the fisherman.



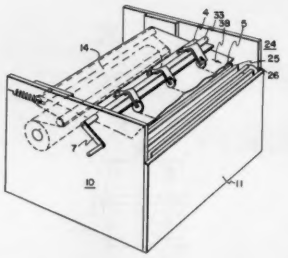
3,782,614
BINOCULAR POCKET
Jimmy T. Campisi, 1027 Parkinson Ct., San Jose, Calif.
Filed May 1, 1972, Ser. No. 248,963
Int. Cl. A45f *5/00*
U.S. Cl. 224—5 V **4 Claims**



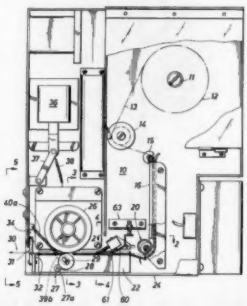
A pocket adapted to be attached to an upper torso garment to hold a pair of binoculars. The pocket comprises a body member and a flap member detachably attached thereto, the flap member having an opening intermediate the sides thereof to permit the straps of the binoculars to pass through and rest around the neck of the wearer of the upper torso garment. When ready access to the binoculars is required the wearer of the upper torso garment detaches the flap member from the body member and detaches one side of the flap member from the upper torso garment to permit the straps to be removed exteriorly from the pocket without removing them from the neck of the wearer.

3,782,615
ROLL CUTTING AND SLICING DISPENSER
David P. Webster, Box 143, Crownsville, Md., and John A. Seward, 128 Archwood Ave., Annapolis, Md.
Filed Dec. 20, 1971, Ser. No. 209,581
Int. Cl. B26d *9/00;* **B26f** *3/02, 3/12*
U.S. Cl. 225—94 **2 Claims**

An apparatus and system for dispensing thermoplastic and other heat sensitive sheets supplied from rolls. The apparatus is characterized by multiple, adjustable cutting or perforating elements which can vary the width of the sheets as it is being dispensed. The apparatus contains a heat cutting element characterized by its non-contacting relationship with the sheet being severed.



3,782,616
STAMP DISPENSING APPARATUS
John L. Surber, Jr., San Antonio, Tex., assignor to U.S. Postage Box Company, San Antonio, Tex.
Filed Feb. 18, 1972, Ser. No. 226,733
Int. Cl. B65h *25/32*
U.S. Cl. 226—43 **4 Claims**



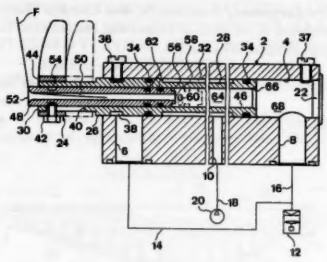
An elongated web of stamps having a longitudinally spaced transverse row of perforations between each stamp is stored as a roll in the apparatus. The apparatus unwinds the stamp web from the roll and dispenses the desired number of stamps in response to the depositing of a preselected amount of money in the apparatus. The stamp web is engaged on opposite sides by a drive wheel and an idler wheel, respectively, during the dispensing operation. When the drive wheel is rotated, it moves the stamp web between two knife blades and into the opening through which the stamps are dispensed. Electrical contacts, located on opposite sides of the stamp web, make contact with each other and actuate a circuit as each row of perforations passes between the contacts. This circuit counts the number of stamps being dispensed and stops the drive wheel when the desired number of stamps are positioned to be cut from the web by the knives. After each dispensing operation, the idler wheel moves out of engagement with the stamp web.

3,782,617

APPARATUS FOR WITHDRAWING RAPIDLY MOVING YARN MATERIAL

Hermann Gasser, Zurich, and Imre Plezer, Greifensee, both of Switzerland, assignors to Luwa AG, Zurich, Switzerland

Filed June 12, 1972, Ser. No. 261,737
Claims priority, application Switzerland, June 18, 1971, 8909/71
Int. Cl. B65h 17/32
U.S. Cl. 226—97 5 Claims



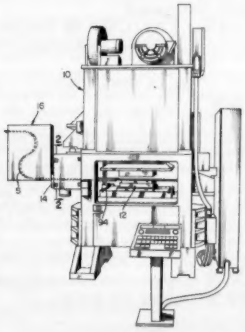
An apparatus for withdrawing or sucking off rapidly moving yarn material comprising a suction bore, an approximately cylindrical compartment into which the suction bore opens approximately coaxially and which possesses a larger diameter relative thereto. A compressed air channel opens into the cylindrical compartment. The compressed air channel enters approximately tangentially into such cylindrical compartment.

3,782,618

STOCK FEEDING DEVICE

John E. Voorhees, Sidney, Ohio, assignor to The Minster Machine Company, Minster, Ohio

Filed Sept. 5, 1972, Ser. No. 286,121
Int. Cl. B65h 17/22
U.S. Cl. 226—155 18 Claims



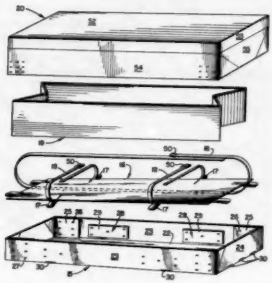
A stock feeding device in which a pair of rollers frictionally engage the stock therebetween, with one of the rollers being intermittently driven and the other roller being pressed toward the driven roller. The rollers are contained within a housing which includes adjusting screws for eliminating lost motion between the elements of the intermittent drive which are also mounted in the housing. An arrangement is provided for momentarily retracting the idler roller away from the driven roller between feed intervals of the rollers.

3,782,619

SHIPPING CONTAINER

Clyde A. Dittbenner, 15 North St., Andrew Dr., Ormond Beach, Fla.

Filed June 29, 1972, Ser. No. 267,706
Int. Cl. B65d 5/46, 5/50, 25/22
U.S. Cl. 229—14 R 3 Claims



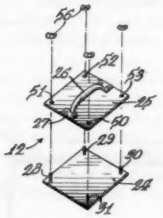
A shipping container for air transport of a casket or the like is provided, which can be shipped to the user in a compact condition, erected at the place of use, and discarded after use. The elements of the shipping container involve in combination a casket protecting enclosure and a lifting flat plate positioned beneath the casket. A shipping container is provided as well as a package made up of the parts of the shipping container.

3,782,620

CARRYING HANDLE ASSEMBLY FOR CARTONS

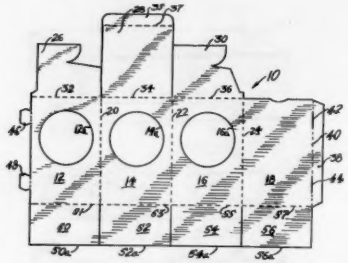
Arthur H. Eichholz, Polo, Ill., assignor to Central Quality Industries, Inc., Polo, Ill.

Filed May 11, 1972, Ser. No. 252,476
Int. Cl. B65d 5/46
U.S. Cl. 229—52 AM 9 Claims



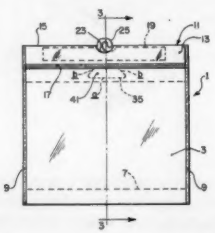
A carrying handle for cardboard cartons having two sets of opposed overlapping top flaps, including a base plate with four threaded studs equiangularly positioned on the base plate so that with the base plate appropriately positioned beneath the closed flaps each threaded fastener extends through aligned openings in two of the flaps, there being provided a top plate over the closed flaps with four apertures for receiving the threaded studs, with wing nuts on the studs for holding the plates together, and a carrying handle fixed to the top plate.

3,782,621
CARTON STRUCTURE
James N. Edgeington, Jr.; Edgar G. Lowrance, II, and Richard G. Odell, all of Albuquerque, N. Mex., assignors to IMS Corporation, Albuquerque, N. Mex.
Filed Dec. 27, 1971, Ser. No. 212,557
Int. Cl. B65d 13/04
U.S. Cl. 229—23 A 4 Claims



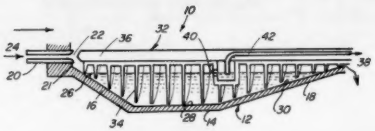
A carton structure particularly intended for use with a lamp bulb is formed of a carton blank of cardboard or other material to be folded along bend lines articulating first, second, third and fourth side wall panels as well as top and bottom flaps. Openings are formed in one or more of the side wall panels to allow visual display of the article contained therein. Bottom holding flaps are contiguous with the side wall panels and are turned upwardly into the carton and terminate at a common level in the carton to provide support edges therein. A bottom panel is inserted into the carton and rests upon the support edges formed by the bottom holding flaps and is held in place thereby. The bottom wall panel has peripheral portions thereof turned downwardly and inserted between the respective wall and upturned bottom holding flap. The transverse dimension of each flap is slightly larger than the transverse dimension of the space within the folded carton so that the flaps are firmly held in position by frictional force and the carton will provide a protective cushion housing around the article contained therein.

3,782,622
PLASTIC BAGS
Ray E. Montgomery, Terre Haute, Ind., assignor to Bemis Company, Inc., Minneapolis, Minn.
Filed Oct. 12, 1971, Ser. No. 187,943
Int. Cl. B65d 33/08
U.S. Cl. 229—54 R 3 Claims



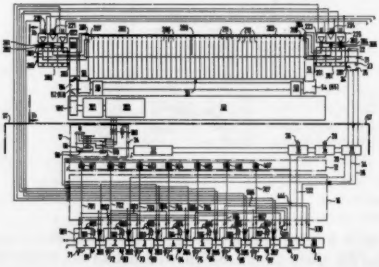
A plastic bag having a front wall and a back wall joined at the bottom, heat-sealed together at the sides, and open at the mouth, having a closure flap folded down at the bag mouth and heat-sealed at its ends together with the bag side seals. Finger hole means is provided in each of the front wall, the back wall and the closure flap whereby the bag may be carried by the hand with the fingers of the hand extending through all three of said front wall, back wall and closure flap. Also disclosed is a hem at the mouth of the bag receiving a stiffener extending transversely of the bag. The stiffener may have a hook for hanging the bag, or holes may be provided in the bag walls and closure flap for hanging the bag.

3,782,623
DECANTING CENTRIFUGE FOR DRAINING OFF WATER FROM SEWAGE SLUDGE
Jorgen Bye-Jorgensen, Humlebaek, and Gunnar Hartvig Larsen, Rungsted Kyst, both of Denmark, assignors to I. Kruger A/S, Copenhagen, Denmark
Filed June 3, 1971, Ser. No. 149,670
Claims priority, application Denmark, July 11, 1970, 703019
Int. Cl. B04b 1/20
U.S. Cl. 233—7 8 Claims



Decanting centrifuge for draining off water from sewage sludge, which centrifuge has a rotating bowl and helical walls rotating therein to scrape the sludge towards the end of the bowl to discard it. The rotating bowl has a conical entrance section in which the helical walls are provided, where the progression of the sludge through the conical section is retarded, the conical shape of the section being important to secure a gradual increase of velocity and to reduce any tendency to create turbulence.

3,782,624
SEPARATION OR EXTRACTION APPARATUS UTILIZING DISTRIBUTION OF SOLUTES BETWEEN IMMISCIBLE PHASES
Felix Gottfried Mueller, Basel, Switzerland, assignor to Ciby-Geigy AG, Basel, Switzerland
Filed Nov. 5, 1971, Ser. No. 195,916
Claims priority, application Switzerland, Nov. 9, 1970, 16533/70
Int. Cl. B04b 11/00
U.S. Cl. 233—20 R 18 Claims



An apparatus is provided which makes use of the distribution of one or more solutes between two substantially immiscible liquid solvent phases to perform a separation or extraction. A cylindrical vessel, whose interior is subdivided by transverse partitions into a plurality of chambers each of which is in communication with its neighbours through a flow passage, is

mounted for rotation with its axis horizontal. All the flow passages are located on the same side of a plane including the axis of the cylinder. Both the rotation of the vessel, and the operation of valves at the axially endmost chambers controlling supply of liquid to the vessel and withdrawal of liquid therefrom, are arranged to operate in response to a programmed control system. Supply and withdrawal of one phase at a time through the vessel can be made if the appropriate valves are opened at a time when that phase alone is presented to the flow passages in each chamber of the vessel.

3,782,625

METHOD FOR AUTOMATICALLY CONTROLLING THE PUNCHING OF CONTROL CARDS FOR MAKING PATTERNED TEXTILES IN CONFORMITY WITH A SAMPLE DESIGN

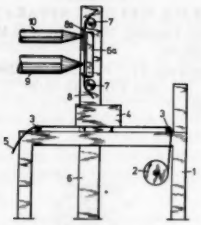
Johannes Bitterlich, Schlosstrasse 11, Erbach, Wurttemberg, Germany

Filed May 13, 1971, Ser. No. 143,094

Claims priority, application Germany, May 14, 1970, P 20 23 607.1

Int. Cl. G06k *1/02*

U.S. Cl. 234—2 **3 Claims**



A method and apparatus for controlling the punching of control cards which are, in turn, employed for controlling weaving devices for the manufacture of colored patterned textiles. The pattern to be punched into the control card is set up on a design member in the form of adjacent transverse rows of areas which are individually colored in conformity with the desired pattern. A control member is also provided having at least vertical lines thereon spaced apart the same distance as a width of a respective area on the design member. The control and design members are fixed in position relative to each other and an optical scanning device is opposed to each with the devices mounted on a carriage moveable in the transverse direction of the control and design members. The optical device scanning the design member is only effective when the optical device scanning the control member passes over a line thereof and a punching device for the control card is punched in conformity with the detected color. The control member and the design member can be in the form of a unitary article, or they can be separate articles. After one transverse row of areas of the design member is scanned, the carriage returns to a starting position and at least the design member advances and the next row of areas is then scanned.

3,782,626

SLIDE RULE WITH IMPROVED CALCULATING CAPACITY

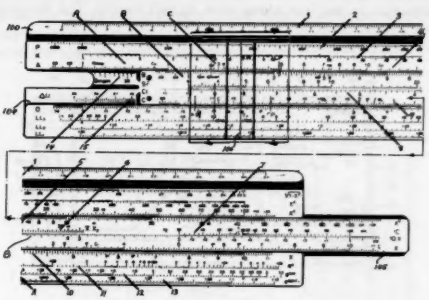
Iosif Hondrea, Rimisoara, Romania, assignor to Iprofil "-Technolemn"-Industria Produselor Finite Din Lemn Timisoara, Noembrie, Romania

Filed June 21, 1971, Ser. No. 154,745

Int. Cl. G06g *1/02*

U.S. Cl. 235—70 R **8 Claims**

A slide rule with improved calculating capacity has, in addition to the A, B, C, D and related scales, a folded square scale BF whose origin π coincides with the left-hand indices 1 of the previously mentioned scales and which runs to the value 36 on



the slider. The balance of the length of the slider is provided with a centesimal trigonometric scale.

3,782,627

VALVE MEANS, PARTICULARLY AUTOMATIC WASTE GAS VALVE MEANS

Stellan Akesson, Narvagen 28, Jonkoping, Sweden

Filed Apr. 6, 1972, Ser. No. 241,626

Int. Cl. 110 *163*; 236 *101*; G05d *23/10*

U.S. Cl. 236—93 **13 Claims**

A temperature-responsive valve operated by bimetallic means for exhausting waste gases from a burner. To reduce the noise level of the valve, the inner surface of the valve casing is tapered in the direction of flow and the flow is regulated by a plate which intersects the center axis of the casing and has its free edge disposed at substantially the same angle as the tapered surface. The plane free edge, cooperating with the tapered surface in the form of a circular segment, provides a highly advantageous relationship with respect to the production of sound. As the temperature of the flow increases, the flow area is increased, the arrangement being such that a small deflection of the plate effects a great increase in the flow area. In the preferred embodiment, the plate itself is bimetallic whereas in an alternate embodiment, the plate is displaced angularly by a bimetallic element. Where the clearance space between the plate and the casing is problematical with respect to noise generation, the plate may be made rectangular and the sides of the casing where the plate engages may be parallel to one another.

3,782,628

PORTABLE HEATING UNIT

Maurice Beaudet, St. Philippe de LaPrairie, Quebec, Canada, assignor to Galt Equipment Ltd., Candiac, Quebec, Canada

Filed Mar. 19, 1971, Ser. No. 126,114

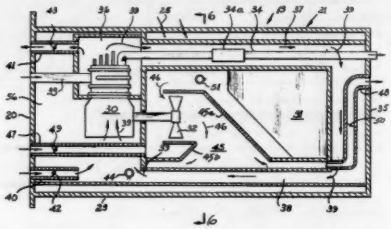
Claims priority, application Great Britain, Mar. 20, 1970, 13,558/70

Int. Cl. B60h *1/22*

U.S. Cl. 237—12.3 C **5 Claims**

A portable self-contained temperature controlling unit is removably inserted in a shipping container so that the con-

tents may be heated or cooled during shipment. In the instance of heating, the portable unit derives its heat output from the operation of an internal combustion engine which is embodied in the unit along with its fuel supply. The heating



unit includes primary and secondary air circuits in heat exchange relation with each other, and connections of these circuits to outside air have thermostatically controlled valves arranged so that the heat output of the unit is regulated while the operating speed of the engine remains constant.

3,782,629

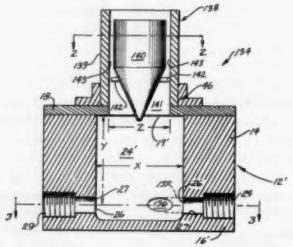
FLOW CONTROL IN ORNAMENTAL FOUNTAINS

John O. Hruby, Jr., Burbank, Calif., assignor to Rain Jet Corp., Burbank, Calif.

Division of Ser. No. 87,886, Nov. 9, 1970, Pat. No. 3,705,686. This application Apr. 3, 1972, Ser. No. 240,675

Int. Cl. B05b *17/08*

U.S. Cl. 239—17 **6 Claims**



An ornamental fountain is comprised of a discharge nozzle and a mounting base through which water is supplied to the nozzle. Two pairs of water supply ducts communicate to a chamber within the base. One pair of ducts is coaxially aligned opposite each other diametrically of the chamber, and the other pair of ducts communicates tangentially of the chamber. Water for the fountain is supplied to the nozzle via either pair of ducts so that, depending upon the pair of ducts used, the fountain pattern has one or the other of two distinctly different aesthetic characteristics.

3,782,630

SPRINKLER CONTROL SYSTEM

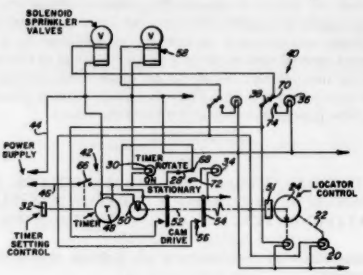
William V. Sabo, 144 N. Sylvan Ave., Columbus, Ohio

Filed May 30, 1972, Ser. No. 257,526

Int. Cl. B05b *3/06*

U.S. Cl. 239—70 **8 Claims**

A plurality of irrigation sprinklers are sequentially operated for timed intervals by an electrical control system having a timing mechanism through which valve solenoids are energized. Selected solenoid circuits are opened by eliminator switches to bypass desired sprinkler locations during timed ir-



rigation cycles. Through a locator panel portion, the sprinklers in operation are identified and the operating period of desired sprinklers extended beyond the time interval.

3,782,631

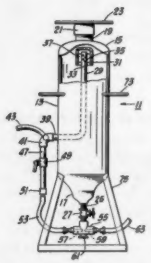
SILICA WELDING APPARATUS

Albert T. Brockly, Lansing, Ill., assignor to Koppers Company, Inc., Pittsburgh, Pa.

Filed June 21, 1972, Ser. No. 264,836

Int. Cl. B05b *7/16*

U.S. Cl. 239—85 **2 Claims**



A novel apparatus includes a cylindrical canister in which internal piping carries a gas that pressurizes a quantity of silica, preferably sand, therein. A nozzle at the bottom of the canister receives the silica under control of a valve, and the oxygen flowing into the canister and through the nozzle carries the silica to a torch tip where the silica melts in an oxy-fuel flame burning thereat. The oxygen propels the molten silica into cracks and openings in need of filling for repairs.

3,782,632

POWDER SPRAY GUN FOR SPRAYING DIFFERENT COLOR POWDERS FROM A POWDER CHANNEL OF A SPRAY GUN

Franz Braun, Staad; Peter Ribnitz, and Willi Huber, both of St. Gallen, all of Switzerland, assignors to Gema AG Apparatebau, St. Gallen, Switzerland

Continuation-in-part of Ser. No. 198,816, Nov. 15, 1971, abandoned. This application Aug. 1, 1972, Ser. No. 277,082

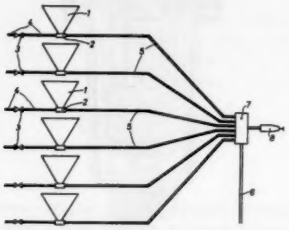
Claims priority, application Switzerland, Aug. 2, 1971, 11345/71; Mar. 24, 1972, 4417/72

Int. Cl. B05b *7/02*

U.S. Cl. 239—112 **6 Claims**

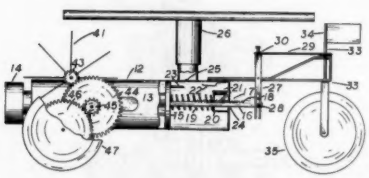
A powder spray gun for spraying different color powders from a powder dispensing channel of the spray gun, with a

connection mechanism possessing a number of connections at which there can be connected infeed conduits for different powder-conveying air-mixtures and flushing air and through the agency of which there can be delivered to the spray gun-powder dispensing channel a selected powder-conveying air-mixture for spray coating thereof and flushing air for cleaning of such spray gun. The connection mechanism comprises a connection element carrying the connections, this connection element containing for each connection a continuous substantially straight connection channel. The connection element



and the pistol body member containing the powder dispensing channel can be adjusted relative to one another in such a manner that the connection channels of the connection element can be connected by means of their outlet openings with the inlet opening of the powder dispensing channel in a certain sequence and with a given distribution of the infeed conduits for the powder-conveying air-mixture and the flushing air at the connections of the connection element the spray gun powder dispensing channel is flushed with flushing air during each color change.

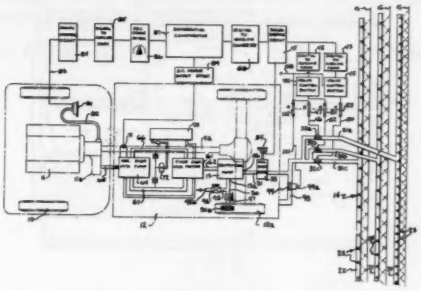
3,782,633
REMOTE CONTROLLED, SELF-PROPELLED LAWN SPRINKLER
Wladimir Nyc, 4411 San Jose Blvd., Jacksonville, Fla.
Filed May 13, 1971, Ser. No. 143,047
Int. Cl. B05b *3/18*
U.S. Cl. 239—191 **1 Claim**



A remote controlled, self-propelled lawn sprinkling device for attachment to a water hose, comprising drive means powered by a water vane and a hydraulic piston arrangement for changing the direction of said lawn sprinkler, which is controlled by opening and closing the water supply spigot at the other end of said water hose.

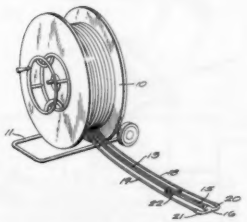
3,782,634
VEHICLE MOUNTED LIQUID DISTRIBUTOR APPARATUS
John R. Herman, Monroe Center, Ill., assignor to Swenson Spreader & Mfg. Co., Lindenwood, Ill.
Filed Dec. 15, 1972, Ser. No. 315,664
Int. Cl. B05b *9/06*
U.S. Cl. 239—156 **12 Claims**

A liquid distributor apparatus for use on a vehicle including a liquid product supply tank and a pump for pumping liquid from the tank to a spray bar system for spreading liquid product in a preselected width of spread along a path traversed by the vehicle. The rate of flow of liquid product from the spray bar system is varied with vehicle speed under the control of a vehicle speed sensor and a product flow meter which senses rate of flow of product to the spray bar system to



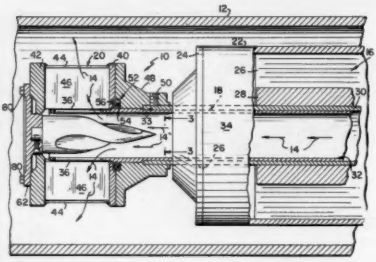
maintain a preset spread density independent of the speed of the vehicle. The spray bar system includes a plurality of spray bars each arranged to spread liquid over the same width of spread but at relatively different flow rates and the flow of liquid product to the several spray bars is controlled by the product flow meter to maintain the spray bar pressure within a preselected pressure range.

3,782,635
REVERSE FLOW LAWN SPRINKLER HOSE ASSEMBLY
Miecislaus Krawczyk, 3859 E. Whittaker, Cudahy, Wis.
Filed Oct. 11, 1972, Ser. No. 291,961
Int. Cl. A01q *25/00*
U.S. Cl. 239—199 **6 Claims**



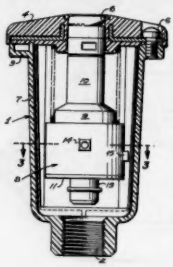
A flat lawn hose of the fine sprinkling type is normally attached with its inlet end to a length of conventional lawn hose. The present fine sprinkling hose is normally on a reel and has the inlet end thereof at the free end thereof and is flanked by a pair of hose elements terminating in a union which is centrally united with the free end of the fine sprinkling hose. The pair of hose elements are also wound on the reel and are coupled with the source of water. The user pulls out a selected length of fine sprinkler, affixes a hose clamp and only the selected length of fine sprinkling hose need be used and in its most convenient accessibility.

3,782,636
PIPELINING APPARATUS
Frank R. Donnelly, Rockaway, N.J., assignor to Spin Company, Newfoundland, N.J.
Filed Oct. 2, 1972, Ser. No. 294,014
Int. Cl. B05b 3/10
U.S. Cl. 239—216 5 Claims



An apparatus is provided for coating the interior walls of a pipeline with a lining of cement mortar in which an annular rotating dispersion head is used for spraying the mortar against the pipe walls. A shaft formed with fluted slots is coaxially positioned with respect to the annular dispersion head in order to obtain a uniform dispersion of the mortar.

3,782,638
PART CIRCLE SPRINKLER
John Bumpstead, Glendora, Calif., assignor to Anthony Manufacturing Corp., Azusa, Calif.
Filed July 31, 1972, Ser. No. 276,695
Int. Cl. B05b 3/16
U.S. Cl. 239—242 12 Claims

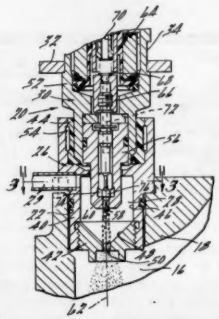


A part circle sprinkler having an internal reversible water motor which includes a water deflector movable between two positions and a reversing blade engaged by triggering fingers which are circumferentially adjustable from the exterior of the sprinkler.

3,782,637
WIND-RESPONSIVE SPRINKLER REGULATOR
William H. Crumpacker, 1538 School Ave., Walla Walla, Wash.
Filed Jan. 22, 1973, Ser. No. 325,879
Int. Cl. B05b 3/08
U.S. Cl. 239—232 7 Claims

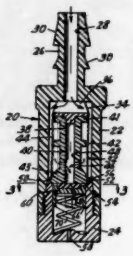
A screen is operatively connected to a transverse wind vane and pivoted with the vane about a horizontal axis relative to the vertical rotational axis of a rotatable sprinkler head having a nozzle forming a spray jet. The screen is pivotable across the nozzle in response to wind velocity, so that as the water jet faces into or against the wind, the screen is held clear of the spray allowing maximum trajectory of the spray jet against the wind. When the spray moves downwind, or in the same direction as the wind, the screen pivots into the spray jet to shorten its trajectory by dissipating the jet into small droplets. A substantially circular sprinkling pattern and thereby, even water dispersal may thus be maintained regardless of wind velocity or direction.

3,782,639
FUEL INJECTION APPARATUS
Ronald R. Boltz, Oak Park, and William K. Ojala, Dearborn Heights, both of Mich., assignors to Ford Motor Company, Dearborn, Mich.
Filed Apr. 17, 1972, Ser. No. 244,441
Int. Cl. B05b 1/34
U.S. Cl. 239—405 1 Claim



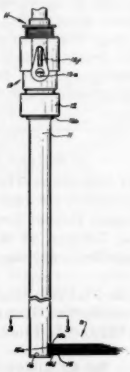
Apparatus for the injection of fuel into the intake manifold of an internal combustion engine is described. The apparatus includes an air-assist nozzle that has a chamber formed in it that includes an orifice for the discharge of air-atomized fuel. A fuel injector has a fuel discharge port positioned within the chamber of the air-assist nozzle. The air-assist nozzle has an air inlet to the chamber, and air which enters the chamber through the inlet mixes with the fuel discharged from the fuel injector producing an air-fuel atomized mixture which is discharged from the orifice of the air-assist nozzle.

3,782,640
VALVE MECHANISM FOR LIQUID APPLICATOR
John D. Kirschmann, 933 Anderson St., Bismarck, N. Dak.
Filed Mar. 1, 1972, Ser. No. 230,917
Int. Cl. B05b 9/06
U.S. Cl. 239—571 6 Claims



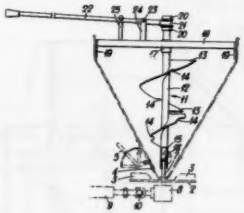
A flow control valve for a liquid applicator having and outlet port formed in a filter assembly in the valve housing and a valve element urged towards a normally closed position against the outlet port by a compression spring guided by a shiftable carrier which also serves as a retainer and carrier for the valve element. The filter assembly is attached by a quick-disconnect joint to a removable bottom plug having a base wall for the valve housing through which a discharge orifice of predetermined size extends.

3,782,641
APPARATUS FOR PRODUCING A LATERALLY DIRECTED SPRAY OF FLUID
Charles H. Springer, Rt. 1, Box 325, Alta Loma, Tex.
Filed May 30, 1972, Ser. No. 258,086
Int. Cl. B05b 1/04
U.S. Cl. 239—598 1 Claim



An elongate, rigid or semi-rigid tubular fluid conductor equipped with a fluid discharge opening at one end and a fluid inlet opening at the other end. A valve at the inlet end permits control of fluid flowing through the conduit and a removed wall section at the outlet end directs the fluid leaving the conduit laterally away from the conduit body. The outlet opening is positioned adjacent a planar end surface of the body and has lateral and longitudinal dimensions which bear a predetermined relationship to each other and to the dimensions of the flow passage extending through the conduit to provide the desired spray direction and configuration. The primary intended purpose of the apparatus is to provide a high velocity, laterally directed spray which may be directed countercurrent to the downwind direction of a heat exchange body or radiator to wash away insects and other debris clogging air flow through the radiating elements of the body.

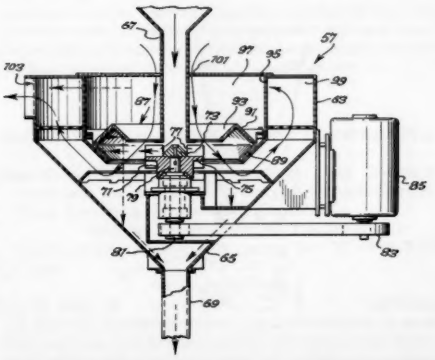
3,782,642
BROADCASTING DEVICES
Alan Hall Trafford, 44 Wood St., Chatteris, England
Filed Dec. 20, 1971, Ser. No. 210,053
Claims priority, application Great Britain, Dec. 21, 1970, 60,607/70; Oct. 11, 1971, 47,271/71
Int. Cl. A01c 17/00
U.S. Cl. 239—683 13 Claims



Broadcasting devices as used in agriculture and horticulture having a container and a rotary or oscillating distributor are fitted with a charge blender in the form of an upright modified Archimedean Screw driven by the distributor to lift, mix and blend charge material in the container so as to enable a charge of different particulate or powdered materials placed individually in the container to be blended into a homogeneous mix immediately prior to broadcasting.

The charge blender conveniently consists of a single-flight Archimedean Screw of upwardly increasing diameter and shaped, e.g. inclined or notched, so as to act as a low-efficiency auger when rotated in a mass of particulate material.

3,782,643
APPARATUS FOR CONDITIONING A GRANULAR MATERIAL
James H. Carpenter, Jr., Hagerstown, Md., assignor to The Carborundum Company, Niagara Falls, N.Y.
Continuation-in-part of Ser. No. 108,417, Jan. 21, 1971, Pat. No. 3,716,947. This application May 17, 1972, Ser. No. 253,945
Int. Cl. B02c 23/00
U.S. Cl. 241—60 12 Claims



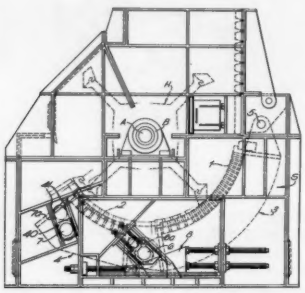
In an apparatus for conditioning a granular matrial, a centrifugal throwing wheel projects the material radially against

an impact surface which completely surrounds and is spaced from the periphery of the wheel. An air stream is moved between the impact surface and the periphery of the wheel so as to remove contaminants from the projected particles.

3,782,644
SLEDGER CRUSHER

Malcolm John MacMaster, and Kenneth John George MacMaster, both of Stourbridge, England, assignors to Frances & John S. Lane Limited, Brierley, England

Filed Dec. 17, 1971, Ser. No. 209,207
Claims priority, application Great Britain, Nov. 5, 1971, 51,553/71
Int. Cl. B02c *13/02*
U.S. Cl. 241—69 **11 Claims**

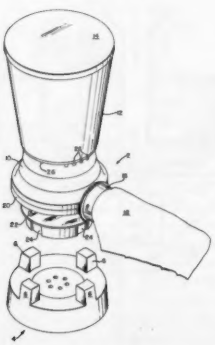


A crushing mill comprising a casing having a plurality of hammers mounted to revolve about a horizontal axis and within which casing cradles provided with grid bars whose position is adjustable in relation to the rotation path of the hammers, the cradles at their adjacent ends having a common fulcrum, the improvement in which means is provided for effecting adjustment of both cradles in unison by shifting the axis of the fulcrum inwardly or outwardly relative to the path of the hammers.

3,782,645
FLOUR MILL

Leroy V. Martenson, 8141-7th Ave. S.W., Seattle, Wash.

Filed Nov. 17, 1971, Ser. No. 199,640
Int. Cl. B02c *7/14*
U.S. Cl. 241—100 **7 Claims**

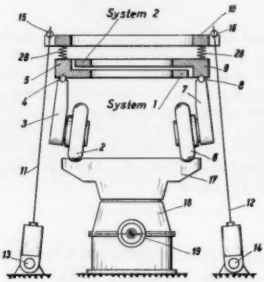


A flour mill adapted to be used in conjunction with and capitalize upon the self contained motor of a household type blender or other removable motor base. The mill is designed to receive whole grain cereal in the upper portion of a hollow grinding chamber which has an abrasive coating upon its inner surface whereat the cereal is subjected to a combination of attrition and contact grinding before being expelled from the side of the housing into a proper receptacle. The mill further includes an adjusting mechanism whereby the consistency of the flour may be controlled.

3,782,646
ROLLER MILL OF THE EDGE RUNNER TYPE

Horst Brundiek, Rubenstrasse 26, Kaarst, Germany

Filed Apr. 28, 1972, Ser. No. 248,643
Claims priority, application Germany, May 18, 1971, P 21 24 521.6
Int. Cl. B02c *15/04, 15/14*
U.S. Cl. 241—117 **4 Claims**



An edge runner type roller mill in which three rolls are adapted to cooperate with a grinding table, and spring or hydraulic loading means are provided for the rolls. A ring is arranged above the rolls for applying force to the rolls in accordance with a three point system, and a yoke serves for holding down the ring, with a second ring being arranged above or below the first-mentioned ring for loading three further rolls alternating with the first-mentioned rolls and adapted with them to cooperate with the grinding table.

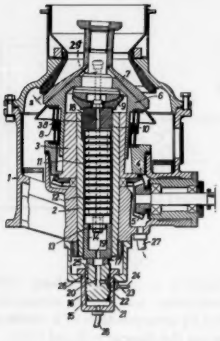
3,782,647
GYRATORY CRUSHER WITH HYDRAULIC ADJUSTMENT OF THE CRUSHER

Hanns Decker, Cologne; Helmut Stockmann, Wesseling, and Heinz Hurtmanns, Cologne, all of Germany, assignors to Klockner-Humboldt Deutz Aktiengesellschaft, Cologne, Germany

Filed Feb. 29, 1972, Ser. No. 230,261
Claims priority, application Germany, Mar. 5, 1971, P 21 10 476.7; Apr. 21, 1971, P 21 19 223.4; June 26, 1971, P 21 31 901.7
Int. Cl. B02c *2/04*
U.S. Cl. 241—215 **5 Claims**

A gyratory crusher provided with hydraulic adjustment of the crusher gap is provided with a vertical stationary tubular shaft in which is slidably adjustably mounted a supporting shaft carrying at its upper end a segmental spherical bearing for rotatably supporting the crusher cone. The lower end of the supporting shaft carries a spring acting as overload safety device and the lower end of this spring engages a hollow cylindrical cup which is supplied from the exterior of the crusher with a lubricant which is conducted from the cup by a central longitudinal passage in the supporting shaft to said spherical bearing. A piston-cylinder unit engaging the lower end of the cup, preferably by use of a pressure member having one face

formed as a sperical bearing is supplied from the exterior with a hydraulic fluid so as to axially adjust the piston, the cylindrical cup, the supporting shaft and the spherical bearing when the crusher cone and therewith the crusher gap is to be adjusted.



3,782,648

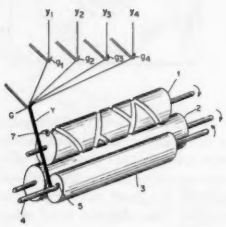
METHOD FOR WINDING A PLURAL NUMBER OF YARNS AND AN APPARATUS THEREFOR

Shoji Ito, Inazawa; Mitsuhiro Okamoto, Nagoya, and Katsumi Hasegawa, Otsu, all of Japan, assignors to Toray Industries, Inc., Tokyo, Japan

Filed May 3, 1971, Ser. No. 139,510

Int. Cl. B65h *54/20*

U.S. Cl. 242—35.5 R **6 Claims**



A method and an apparatus for feeding a plural number of yarns simultaneously to a single take-up drum without a time lag due to supplying the respective yarns one by one. A grooved drum having lateral helical traverse grooves with precisely angled intersection points receives a plural number of yarns from overhead fulcrum guides and winds them on respective laterally spaced portions of a take-up roll positioned beneath the drum.

3,782,649

TENSIONLESS CLOTH FEEDING APPARATUS FOR CLOTH SPREADING MACHINE

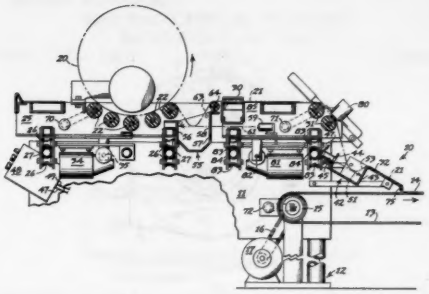
Cecil S. Frederick, Murfreesboro, and Hoyt L. Smith, Nashville, both of Tenn., assignors to Cutters Machine Company, Inc., Nashville, Tenn.

Filed Jan. 22, 1973, Ser. No. 325,446

Int. Cl. B65h *17/02*

U.S. Cl. 242—67.2 **12 Claims**

In a stationary cloth spreading machine adapted to spread cloth upon a laying surface movable away from the spreading machine, cloth feed control apparatus including radiant energy sensing means for sensing excessive tension in the cloth, without frictionally engaging the cloth, to produce a relatively tensionless cloth feed.



3,782,650

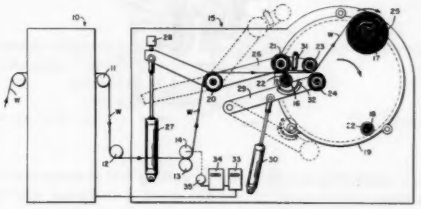
WEB WINDER CONTROL

Emerson B. Donnell, Jr., Neshanic, N.J., assignor to Egan Machinery Company, Somerville, N.J.

Filed Apr. 28, 1972, Ser. No. 248,713

Int. Cl. B65h *35/04, 19/26*

U.S. Cl. 242—56.8 **4 Claims**



Apparatus and method for controlling the operation of continuous web perforating and winding machines, especially of the type used to manufacture plastic bags and automatically wind the bags into small rolls for consumer use. The invention provides means of winding a specified number of bags into each roll and severing the perforated plastic web at a line of perforations at a position suitable for automatically transferring the leading end of the web to a winding spindle.

3,782,651

FACILITY FOR ANCHORING RIBBON TO A SPOOL IN A HOLDER

Hans-Georg Hengelhaupt, Nuremberg, and Friedrich Teichmann, Feucht, both of Germany, assignors to Triumph Werke Nuernberg A.G., Nuernberg, Germany

Filed Jan. 21, 1971, Ser. No. 108,419

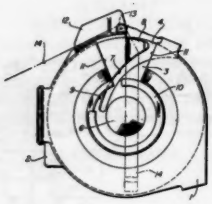
Claims priority, application Germany, Jan. 22, 1970, P 20 02 703.6

Int. Cl. B65h *75/28*

U.S. Cl. 242—74 **6 Claims**

A normally frictionally driven carbon ribbon take up spool rotatively supported within a machine mounted holder is provided with a curved slot in an outer flange which extends from the spool core to its periphery in the direction of rotation of the spool. The flange adjacent to the peripheral portion of the

slot is off-set outwardly to catch and draw a guided ribbon held in its path down to and to wind it on the core. The torque of the frictional drive effective on the spool and the turning moment prevalent at the root of the spool slot, are such that several ribbon winding turns on the spool core can be accomplished before the frictional drive slips.



3,782,652

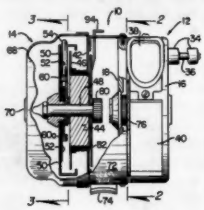
COMBINATION SPINNING AND FLY CASTING REEL

Charles T. Funayama, 2519 S. Brentwood, Denver, Colo.

Filed Mar. 9, 1972, Ser. No. 233,222

Int. Cl. A01k *89/00*

U.S. Cl. 242—84.1 R **4 Claims**



Combination spinning and fly casting reel characterized by a single action rotatable fly line spool, a stationary spinning line spool, a rotatable bail adjacent the stationary spool, disconnectible gearing disposed between the fly line spool and bail, a member carried by the bail adapted to engage or disengage the spinning line in response to relative rotation between the gearing and the bail, and an adjustable friction drag disposed between the fly line spool and the stationary reel body. In the fly casting mode with the gearing disconnected, the fly line reel rotates independently. In the spin reeling mode, with the gearing connected, rotation of the fly line spool rotates the bail.

3,782,653

WEB TENSION CONTROL APPARATUS

Graham Robin Scott Jones, Thornbury, near Bristol, England, assignor to Masson Scott Thrissell Engineering Limited, Bristol, Great Britain

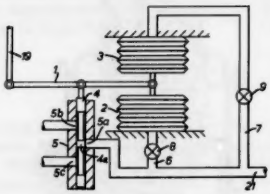
Filed Mar. 20, 1972, Ser. No. 235,958

Claims priority, application Great Britain, Mar. 20, 1971, 7,900/71

Int. Cl. B65h *25/18, 25/04, 25/22*

U.S. Cl. 242—75.43 **16 Claims**

A travelling web being wound onto or unwound from a reel has its tension sensed by a dancer roll in a web loop, and the position of the dancer roll is used to control the drive or brake system of the reel to maintain the tension uniform. With pneumatic control, a valve in the air line is actuated by the dancer roll to increase or decrease the supply, and in addition there is feedback from the air line to operate devices which restore the valve to its median position. These devices act in opposition, one acting faster than the other to cause the initial restoration movement. There is a resultant phase difference between dancer roll movement and valve actuation, which can be further modified by interposition of a mechanical phase shifting device between the dancer roll and valve.



3,782,654

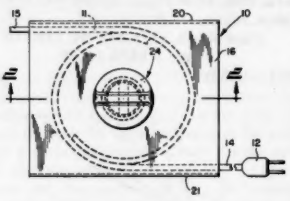
POWER CORD SLACK TAKEUP REEL

Joseph Kasa, 3615 Rocky River Dr., Cleveland, Ohio

Filed Sept. 13, 1971, Ser. No. 179,855

Int. Cl. B65h *75/34*

U.S. Cl. 242—100.1 **7 Claims**



An article of manufacture for storage of electric power cords and the like and for removal of excess slack therein for safety and aesthetic purposes consisting of a semi-rigid plastic housing having a winding shaft releasably secured therein with a plate retained by the shaft, dividing the housing into upper and lower sections, the electric cord adapted to be passed through the housing and to be wound about the shaft in adjacent coils of concentric turns. Another embodiment of the invention is in a single coil layer form with slightly greater dimensions to accommodate substantially the same length of wire slack.

3,782,655

WARP BEAM FLANGE

Werner Moser, Menziken; Paul Buchi, Gontenschwil, and Peter Weber, Menziken, all of Switzerland, assignors to Aluminium AG Menziken, Menziken, Switzerland

Filed Nov. 29, 1971, Ser. No. 202,878

Claims priority, application Switzerland, Dec. 3, 1970, 17870/70

Int. Cl. B65h *75/14*

U.S. Cl. 242—118.5 **10 Claims**

A warp beam flange having a hub and a supporting ring rigidly connected to the bore of the hub. A clamp ring is mounted in a cavity of the hub and movable in axial direction

by screws extending in axial direction. The supporting ring and the clamping ring are screw threaded and arranged to

mate with a corresponding screw thread on a warp beam, so as a relative axial movement between the clamp ring and the supporting ring causes a clamping action on the warp beam.

3,782,656

DRIVING DEVICE FOR OPPOSITELY ROTATING TONE SHAFTS OF A SOUND RECORDING DEVICE

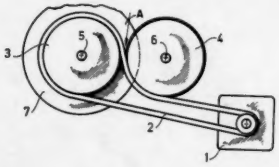
Werner Broghammer, Tennenbronn, Germany, assignor to Firma Dual Gebruder Steidinger, Georgen/Black Forest, Germany

Filed June 21, 1972, Ser. No. 264,837

Claims priority, application Germany, June 22, 1971, P 21 30 751.7

Int. Cl. B11b *15/32*; G03b *1/04*

U.S. Cl. 242—201 **2 Claims**



A driving device for the tone shafts of a sound recording device which comprises a motor, a first tone shaft, and a flywheel-mass disposed coaxially to the first tone shaft and operatively connected therewith. A first belt pulley is disposed coaxially to the first tone shaft and likewise operatively connected therewith. A second tone shaft has an axis substantially parallel to the axis of the first tone shaft. A second belt pulley is disposed coaxially to the second tone shaft and operatively connected therewith, as well as having its periphery close to the periphery of the first belt pulley. An elastic belt driving the first belt pulley and the second belt pulley by means of the motor in opposite directions, and the elastic belt has such height, that the portion of the belt disposed between both belt pulleys is not pressed together by the belt pulleys, yet runs freely for such short path, that the longitudinal elasticity being so small, not to exert a disturbing influence on the uniformity of the rotary speed of the second tone shaft during the operatively occurring load fluctuations of the second tone shaft.

3,782,657

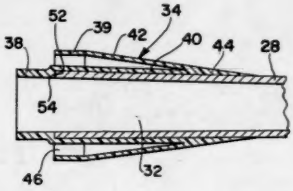
BOBBIN

John Nelson, North Kingston, R.I., assignor to Leesona Corporation, Warwick, R.I.

Filed May 21, 1971, Ser. No. 145,753

Int. Cl. B65h *75/28, 75/10*

U.S. Cl. 242—125.1 **8 Claims**



A yarn collecting bobbin comprising an elongated, tapered tube having a frusto-conical skirt affixed thereto is disclosed. The skirt encircles generally the base section of the bobbin, with a relatively short extension from the tube projecting beyond the lower end of the skirt. The skirt is firmly secured to the tube by any of several different techniques and is notched so as to entrain a yarn end adjacent thereto and commence winding of yarn on the bobbin.

3,782,658

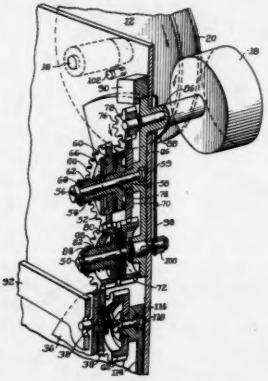
REEL DRIVE

Nicholas Mischenko, Chicago, Ill., assignor to Bell & Howell Company, Chicago, Ill.

Filed May 12, 1972, Ser. No. 252,893

Int. Cl. G03b *1/04*; G11b *15/32*

U.S. Cl. 242—192 **14 Claims**



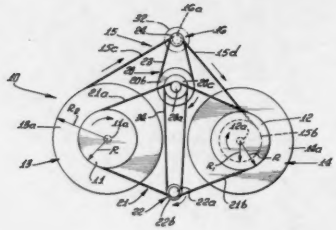
A reel drive for a movie projector having a roller supported for movement from an ineffective position to a reel flange driving position, a first rotatable drive including a gear and a friction member resisting rotation of the gear for moving the roller into engagement and holding the engagement with the reel flange and a second rotatable drive for rotating the roller while in engagement with the reel flange for winding film on the reel.

3,782,659

TAPE TRANSPORT DUAL REEL DRIVE FROM SINGLE CAPSTAN

Frank C. Bumb, Jr., San Gabriel, Calif., assignor to California Data Machines, Van Nuys, Calif.

Filed Mar. 6, 1972, Ser. No. 232,139
Int. Cl. B11b *15/32*; **G03b** *1/04*
U.S. Cl. 242—201 **9 Claims**



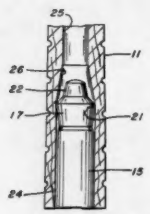
A tape transport comprises first and second rotary elements for respectively rotating carriers for tape rolls between which the tape is to be transported; a rotary capstan unit engageable by the transported tape; and means including belting operatively connected in driven relation with the capstan unit and driving relation with the rotary elements for effecting driving of the carriers at speeds characterized in that the tape being transported onto one of the rolls, and also the tape transported off the other roll, is maintained in tension.

3,782,660

TEXTILE SPINDLE

Donald L. Blake, Campton, N.H., assignor to Rockwell International Corporation, Pittsburgh, Pa.

Filed Sept. 29, 1971, Ser. No. 184,705
Int. Cl. B65h *54/44*, *75/30*
U.S. Cl. 242—46.21 **3 Claims**



A textile spindle adapted to support a bobbin for rotation while building a yarn package thereon having a replaceable driving bushing on the spindle blade for maintaining the bobbin in driving relation with the spindle.

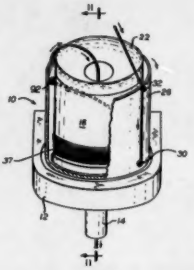
3,782,661

FILAMENT FEEDING AND STORAGE DEVICE

Jose Castillo Deniega, Elmhurst, and Edward M. Tellerman, Woodmere, both of N.Y., assignors to Wesco Industries Corporation, Plainview, N.Y.

Continuation-in-part of Ser. No. 184,527, Sept. 28, 1971. This application Dec. 21, 1971, Ser. No. 210,492
Int. Cl. B65h *51/20*
U.S. Cl. 242—47.12 **2 Claims**

There is disclosed a device for feeding a filament from a supply thereof to a machine wherein said filament may be used for knitting, weaving or spooling. A storage drum is fixedly mounted at one end thereof to a frame member. The filament is guided in a first direction, from a supply thereof to a position adjacent said one end of the drum, where it is wound about the drum to form a plurality of windings which advance in a second direction, opposite to said first direction, toward the other end of the drum. The filament is drawn off the drum in said second direction to the other end of the drum, where it reverses direction and travels through an internal passage in the drum, in said first direction, and through an aperture in the frame member, toward the machine requiring said filament, whereby the device operates as a storage feeder. Alternately, the filament may be unwound from the drum at the same rate as it is wound in which case the device operates as a positive feeder.

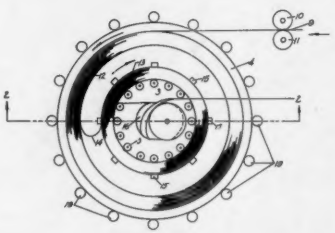


3,782,662

SIMPLIFIED STRIP ACCUMULATION

George D. Miller, Middletown, Ohio, assignor to Armco Steel Corporation, Middletown, Ohio

Filed Feb. 24, 1971, Ser. No. 118,322
Int. Cl. B65h *17/42*, *17/48*
U.S. Cl. 242—55 **13 Claims**



A simplified strip accumulating system of the type wherein a length of strip is formed into a storage coil composed of an inner set of convolutions and an outer set of convolutions interconnected by a free reverse loop extending between and joining the outermost convolution in the inner set and the innermost convolution in the outer set, whereby the reverse loop will orbit freely in opposite directions between the said sets of convolutions as they are rotated, strip being withdrawn from the inside of the innermost set of convolutions upon rotation of said inner set in one direction, and additional strip being added to the outside of the outer set of convolutions upon rotation of said outer set in the opposite direction, the strip being supported on one edge on a horizontally disposed supporting surface with the inner set of convolutions built-up around an inner roll cage, the outer set of convolutions being

formed on a moving supporting surface adapted to impart rotary motion to the strip being coiled, the moving support for the outer set of convolutions being driven in timed relation to the feeding speed of the strip being accumulated, the diameter of the innermost convolution in the outer set being established by the relationship between strip feeding speed and rotational speed of the moving support, thereby providing a free-formed outer set of convolutions to the elimination of an outer roll basket and roll adjusting mechanism heretofore employed to form and support the outer set of convolutions in the storage coil.

3,782,663

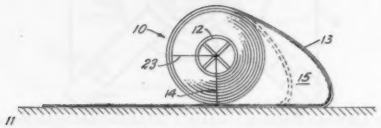
ARTIFICIAL ROLL-UP FIELD

William W. Stevenson, Roseville, Minn., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Filed Mar. 22, 1972, Ser. No. 237,144

Int. Cl. B65h *19/02*

U.S. Cl. 242—55 **6 Claims**



An artificial surface capable of being rolled and unrolled is formed with flexible strips which prevent damage to the surface when said surface is unrolled over a supporting substrate.

3,782,664

AUTOMATIC MACHINE FOR FORMING ROLLS OF PIECE-FABRICS HAVING A PRE-ESTABLISHED LENGTH AND DISCARDING OF DEFECTIVE FABRIC

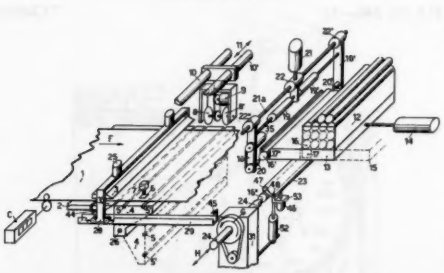
Pietro Alberto, Via Lamarmora, 16, Biella, Italy

Filed Feb. 25, 1972, Ser. No. 229,427

Claims priority, application Italy, Feb. 27, 1971, 21138 A/71; Feb. 9, 1972, 20368 A/72

Int. Cl. B65h *19/26*

U.S. Cl. 242—56 R **18 Claims**



A machine for the automatic formation of rolls of piece-fabrics having a pre-established length is provided with a winding up device, a plane on which the fabric is fed, a cutting device actuated by sensor means responsive to signals applied to the fabric or to a counting device, gripper means adapted to seize therebetween the fabric after the cutting operation and carry it to the winding up device, a feeder of cardboard tubes which are the core of the rolls, said feeder comprising means adapted to unwind a sheet of paper from each tube and means for positioning thereafter the tube on the winding up device so that the end of fabric drawn by said gripper means, held between the tube and the unwound sheet of paper, is the origin of a new roll of fabric. An automatic device for discarding the defective fabric is also provided, when the beginning and the end of each defective length of fabric is indicated by previously applied signals. The above mentioned cutting device carries out two cutting operations and the two fabric edges are then joined together by overlapping and the winding up of the roll continued. A device for counting the length of defective fabric is also preferably provided.

3,782,665

WINDING OF CONTINUOUS WEBS OF SHEET MATERIAL

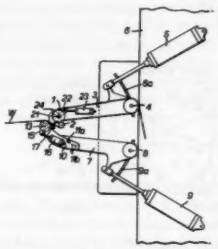
Graham Archie Bruce Byrt; Adrian Tuckwell Rosevear, and William Frank Clarke, all of Bristol, England, assignors to Masson Scott Thrissell Engineering Limited, Bristol, England

Filed Feb. 7, 1972, Ser. No. 224,070

Claims priority, application Great Britain, Feb. 5, 1971, 4,045/71

Int. Cl. B65h *19/26*

U.S. Cl. 242—56 R **7 Claims**



Apparatus for transferring a continuous web of sheet material being wound onto a fresh core employs a rider roll to press the web as it runs onto the new core and a guide roll to retain the web against the core circumferentially well downstream of the rider roll so that the web is wrapped around a major portion of the circumference. A cutter and transfer device are operable to cut the web between the core and the guide roll and urge the new leading end of the web onto the core.

3,782,666

RE-WINDING DEVICE FOR THE PAPER FOR TELEPRINTER MACHINES AND PRINTING MACHINES IN GENERAL

Bruno Sandrone, and Antonio Toniolo, both of Ivrea, Italy, assignors to Ing. C. Olivetti & Co. S. p. A., Ivrea (Torino), Italy

Filed July 2, 1971, Ser. No. 159,273

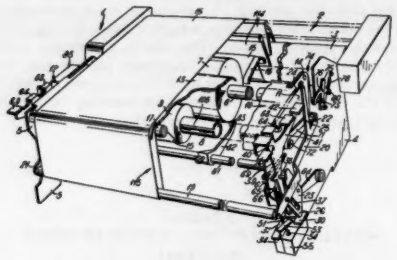
Claims priority, application Italy, July 3, 1970, 69300 A/70

Int. Cl. B65h *25/04, 25/14*

U.S. Cl. 242—67.2 **16 Claims**

A device for rewinding the paper strip on a teleprinter machine is disclosed, including a motor driven rewinding roller and motor control means sensitive to the length of a portion of the paper strip comprised between the rewinding roller and the teletype's printing roller to intermittently rotate the rewinding roller and so wind up the paper. The changing

length of the paper strip portion causes oscillation of a lever coupled to a switch which turns the motor on or off depending



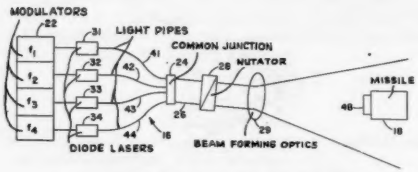
on the length of the strip portion. Means are also provided to monitor the diameter of the feed strip roll.

3,782,667

BEAMRIDER MISSILE GUIDANCE METHOD

Walter E. Miller, Jr.; Teddy J. Peacher; Jimmy R. Duke, and Robert L. Sitton, all of Huntsville, Ala., assignors to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed July 25, 1972, Ser. No. 275,014
Int. Cl. F41g *7/00;* **F42b** *15/02*
U.S. Cl. 244—3.13 **9 Claims**



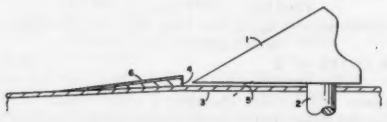
In the improved beamrider guidance an optical beam is electronically modulated and transmitted toward a target. A missile is launched into the beam path and is caused to automatically seek the center of the beam as it flies toward the target. The transmitted beam is spatially encoded to provide guidance signals which the missile automatically responds to in seeking the center of the beam. The beamrider missile does not require tracking or correctional guidance from an external source as it generates its correctional commands internally from the beams's spatial encoding. The missile is immune to optical countermeasures, being within the narrow corridor of the beam and responsive only to the encoded intelligence in the beam for seeking or maintaining flight along the beam center.

3,782,668

RAMP FORWARD OF CONTROL FIN

Robert R. Womack, and Franklin D. Stooksberry, both of Los Angeles, Calif., assignors to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed Sept. 25, 1970, Ser. No. 75,661
Int. Cl. F42b *15/16, 13/32*
U.S. Cl. 244—3.24 **3 Claims**



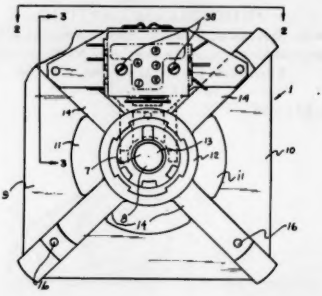
In a missile, a small ramp structure is installed forward of each aerodynamic control fin to deflect reduce air and particle flow away from the gap between the missile body and a control fin therefor.

3,782,669

CENTRIFUGAL ACTUATED MECHANISM WITH SEPARABLE MOUNTING BRACKET

John G. Lewis, St. Louis, Mo., assignor to Emerson Electric Co., St. Louis County, Mo.

Filed Mar. 10, 1972, Ser. No. 233,580
Int. Cl. H01h *3/16, 15/14, 17/12*
U.S. Cl. 248—14 **14 Claims**



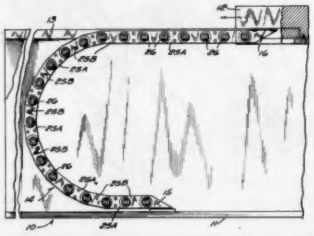
A mounting bracket assembly is provided for mounting peripheral equipment to an electric motor. The bracket is suited particularly for use with various motor types where a stator assembly and rotating member are supported by bearings fitted along end shield structures. More specifically, the bracket is advantageous where an electrical switch and motor protector are preassembled to it. The bracket thereafter is attached to the electric motor, and may be removed easily if the motor fails for any reason.

3,782,670

CARRIER LINK MECHANISM FOR FLEXIBLE SUPPLY LINES

Ervin J. Kielma, Milwaukee, Wis., assignor to A & A Manufacturing Company, Inc., New Berlin, Wis.

Filed Feb. 10, 1972, Ser. No. 225,240
Int. Cl. F16l *3/00*
U.S. Cl. 248—51 **7 Claims**



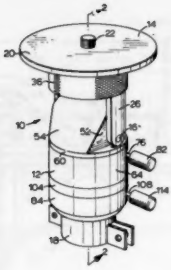
A series of links designed to provide limited articulated movement while supporting flexible supply lines, with each link having a cam portion adjacent its pivot point which engages the cam surface of a pivot pin to limit pivotable movement therebetween and maximum pivotable movement with the adjacent link mounted on the same pivot pin.

3,782,671

CAMERA MOUNT

Godwill M. Igwe, 180 Queen Mary Rd., Apt. 708, Kingston, Ontario, Canada

Filed June 16, 1972, Ser. No. 263,550
Int. Cl. F16m 11/12
U.S. Cl. 248—183 8 Claims



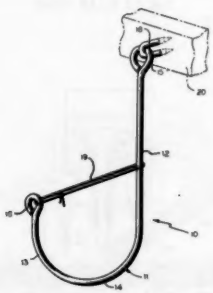
A camera mount includes a camera mounting surface onto which the mounting fitting of the camera may be locked or from which it may be released by projection and retraction of a threaded spindle by use of a novel gearing arrangement.

3,782,672

STORAGE HOOK

Charles O. Larson, Sterling, Ill., assignor to Chas. O. Larson, Co., Sterling, Ill.

Filed Apr. 5, 1971, Ser. No. 131,057
Int. Cl. F16m 13/00
U.S. Cl. 248—302 1 Claim



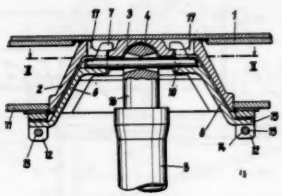
A storage hook is J-shaped and has two rings respectively on the outer ends thereof. A staple or an eye is mounted on a support such as a rafter or the like, and is interconnected with the ring on the longer leg of the hook, to enable an article to be carried by the hook. The other ring may have a string or wire extending therethrough and around the longer leg of the hook to retain the article in place thereon.

3,782,673

CONNECTING MEANS BETWEEN A SUPPORT CAP AND A PROP HEAD

Diethard Wehrens, Sythen, Germany, assignor to Klockner-Werke Aktiengesellschaft, Duisburg, Germany

Filed Mar. 1, 1972, Ser. No. 230,604
Claims priority, application Germany, Mar. 5, 1971, P 21 10 497.2
Int. Cl. E21d 15/00
U.S. Cl. 248—357 2 Claims



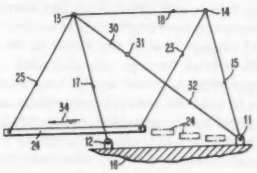
Means for establishing a connection between a support cap and a prop head for pit props of the type used in the mining industry, the support cap comprising a bar or the like supporting an upper bed such as a hanging wall or roof of the mine, and the pit prop constituting a hydraulic cylinder with its ram, or prop head, bracing against the support cap, the connecting means comprising a pair of securing elements releasably fixed to the outer free end of the ram and releasably fixed to the support cap.

3,782,674

KINEMATIC EXTENSIBLE TRUSS MECHANISM

Roy Richard Smith, Poughkeepsie, N.Y., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Oct. 17, 1972, Ser. No. 298,319
Int. Cl. F16m 13/00; E01d 15/00
U.S. Cl. 248—370 11 Claims



A kinematic extensible truss mechanism comprising a first set of truss members arranged in a parallelogram with pivots at each of the junctures of the truss members, and a second set of truss members arranged in a parallelogram with pivots at each of the junctures of the second set of truss members. Two of the pivots of the first set coincide with two of the pivots of the second set, and at least one rigid extension projects from one of the truss members of the second set substantially at right angles thereto. An arm is pivotally connected to the rigid extension and connected for rotation to a pivot of the first set of truss members which is not common to the first and second set of truss members. In this manner movement of one of the truss members of one of the sets relative to another member of the other of the sets maintains parallelism of the one truss member to the other when relative motion occurs in a first direction, and results in an elevation of the one relative to the other when relative motion occurs in the opposite direction.

3,782,675

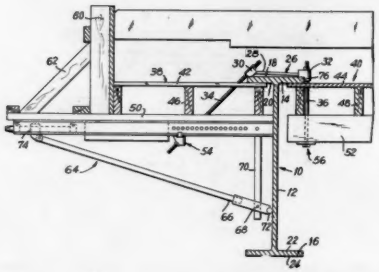
CONCRETE SUPPORTING FORM AND A HANGER THEREFOR

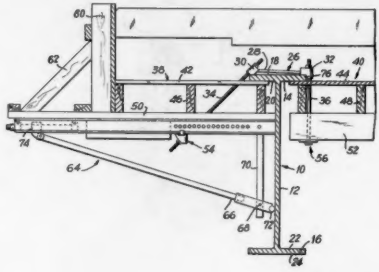
Martin William Boll, and Robert Murray MacRobbie, both of New York, N.Y., assignors to Richmond Screw Anchor Co., New York, N.Y.

Division of Ser. No. 23,844, March 30, 1970, abandoned. This application Dec. 17, 1971, Ser. No. 209,271

Int. Cl. E04g *17/16*

U.S. Cl. 249—23 **6 Claims**





Concrete forms are provided comprising an I-beam including a web and upper and lower flanges on the web. The flanges each have side edges and upper and lower surfaces between the edges. A hanger is supported on the upper surface of the upper flange. This hanger includes a strut which traverses the upper flange and also includes first and second U-shaped brackets straddling and connected to the strut at the ends thereof. The brackets have lower surfaces resting on the upper surface of the upper flange. One bracket is internally provided with a rectilinear receptacle extending at an acute angle to the upper surface of the upper flange and in a direction which is down and outward of the corresponding flange edge. This acutely disposed receptacle may also be perpendicular to the flange. The second bracket includes a portion extending below the upper surface of the upper flange and being engaged against the corresponding edge of the upper flange. This portion is provided with a rectilinear receptacle perpendicular to the upper flange and offset from the corresponding edge thereof. Concrete supporting members extend outwardly from the web and engage against the lower surface of the upper flange. Bolts extend through the aforesaid receptacles and concrete supporting members and locking means are provided on the bolts to hold the concrete supporting members in position. The hanger can be provided, in accordance with one embodiment, with a further U-shaped receptacle supported on an L-shaped arm connected to the aforesaid strut. The strut is preferably arranged at an angle to the supporting flange.

3,782,676

CONCRETE SUPPORTING FORM AND A HANGER THEREFOR

Martin William Boll, East Rockaway, and Robert Murray MacRobbie, Seaford, both of N.Y., assignors to Richmond Screw Anchor Co., Bronx, N.Y.

Continuation of Ser. No. 23,844, March 30, 1970, abandoned. This application May 15, 1972, Ser. No. 253,596

Int. Cl. E04g *17/16*

U.S. Cl. 249—23 **10 Claims**

Concrete forms are provided comprising an I-beam including a web and upper and lower flanges on the web. The flanges each have side edges and upper and lower surfaces between the edges. A hanger is supported on the upper surface of the upper flange. This hanger includes a strut which traverses the upper flange and also includes first and second U-shaped brackets straddling and connected to the strut at the ends thereof. The brackets have lower surfaces resting on the upper surface of the upper flange. One bracket is internally provided with a rectilinear receptacle extending at an acute angle to the upper surface of the upper flange and in a direction which is down and outward of the corresponding flange edge. This acutely disposed receptacle may also be perpendicular to the flange. The second bracket includes a portion extending below the upper surface of the upper flange and being engaged against the corresponding edge of the upper flange. This portion is provided with a rectilinear receptacle perpendicular to the upper flange and offset from the corresponding edge thereof. Concrete supporting members extend outwardly from the web and engage against the lower surface of the upper flange. Bolts extend through the aforesaid receptacles and concrete supporting members and locking means are provided on the bolts to hold the concrete supporting members in position. The hanger can be provided, in accordance with one embodiment, with a further U-shaped receptacle supported on an L-shaped arm connected to the aforesaid strut. The strut is preferably arranged at an angle to the supporting flange.

3,782,677

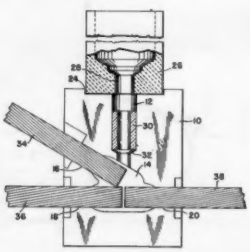
CABLE AND LIKE SPLICING APPARATUS

Leonard Gelfand, Chagrin Falls, Ohio, assignor to Erico Products, Inc., Cleveland, Ohio

Filed Apr. 5, 1971, Ser. No. 131,069

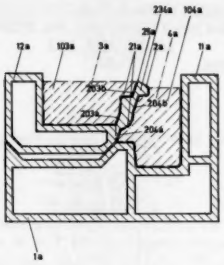
Int. Cl. B22d *19/04*

U.S. Cl. 249—97 **2 Claims**



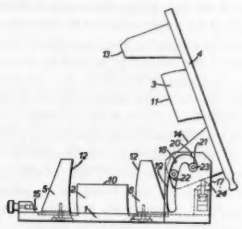
A graphite mold for use in joining cable parts having a weld cavity in which the component parts are received, a sprue opening for induction of molten metal into the cavity to join the parts, and a thermal insulation sleeve within the sprue opening for minimizing heat transfer between the molten metal and the graphite mold.

3,782,678
APPARATUS FOR MAKING PAIRS OF PROFILED INTERFITTING FRAMES OF PLASTIC
Hans Thams, Ellernreihe 64/5, Hamburg, Germany
Filed Apr. 29, 1971, Ser. No. 138,726
Claims priority, application Germany, May 4, 1970, P 20 21 740.7
Int. Cl. B28b 7/24
U.S. Cl. 249—129 3 Claims



Profiled interfitting pairs of frames of plastic material, such as sash frames and window wings, door frames and doors, or the like, which are provided with interengaging sealing surfaces separating the pair of frames from each other, are cast in a single working step in a common mold which is subdivided into two mold cavities for the pair of frames by mounting a separating member within the mold having complementarily shaped side surfaces defining snugly interengaging sealing surfaces of the completed pair of frames.

3,782,679
SPLIT MOULD WITH HINGED UPPER PART
John David Ward, Worcester, England, assignor to Precision Engineering (Worcester) Limited, Worcester, England
Filed July 15, 1971, Ser. No. 162,848
Int. Cl. B22d 33/04
U.S. Cl. 249—170 3 Claims

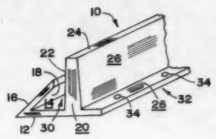


A carrier for a split mould comprises separable parts brought together in accurate alignment by a coupling linkage providing relative movement along a path of radius of curvature large compared to the dimensions of the mould parts and the linkage, thereby avoiding long radius arms.

The linkage may comprise a pin-and-slot connection, with spaced pins or rollers running in an arcuate slot. The slot may be extended in a hook shape to hold the parts open. The opening movement may be cushioned to reduce shock on the pin-and-slot connection.

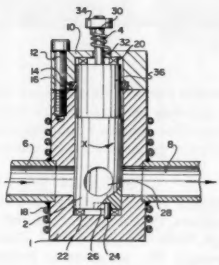
The mould carrier is applicable, for example, to moulding the root and peripheral profiles of compressor, turbine and fan blades.

3,782,680
CHAMFER STRIP
David L. Hopkins, 506 McLeod Rd., Hartsville, S.C.
Filed Oct. 8, 1971, Ser. No. 187,708
Int. Cl. B28b 7/28
U.S. Cl. 249—188 3 Claims



A strip of plastic, or the like material, used for locating a concrete form in the construction of a monolithic slab and beam construction.

3,782,681
THERMALLY ACTUATED AND THERMALLY SEALED VALVE
Frederick Paul Blackstein, Chalk River, Ontario, Canada, assignor to Atomic Energy of Canada Limited, Ottawa, Ontario, Canada
Filed May 8, 1972, Ser. No. 250,873
Claims priority, application Canada, Aug. 11, 1971, 120299
Int. Cl. F16k 31/02
U.S. Cl. 251—11 5 Claims

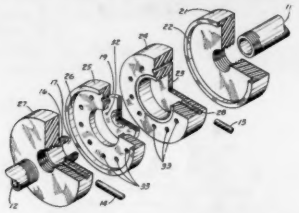


A thermally actuated and thermally sealed valve wherein a plug cock is a shrink fit within a casing, and the plug cock is urged in the operative direction by, say, a torsion spring or two electromagnets. Thermally expanding the casing and/or contracting the plug cock causes the casing to release the plug cock so that it is moved to either open or close the valve.

3,782,682
FLUID FLOW CONTROLLER
Walter G. Lale, 10215 Cord Ave., Downey, Calif.
Filed Nov. 1, 1971, Ser. No. 194,120
Int. Cl. F16r 31/165
U.S. Cl. 251—61.1 2 Claims

Fluid control apparatus for selective flow switching of a pressurized fluid source. A manifold chamber having a fluid inlet port, also has a fluid outlet port defined by an annular wall with mouth extending into the manifold chamber. A control chamber, adjacent to the manifold chamber, has a control pressure port adapted to be connected to a control pressure source. A differentially pressure responsive elastomeric diaphram member sealingly separates and constitutes a common wall of the manifold chamber and control chamber, and

is adapted to seat against the mouth of the annular wall, as to prevent fluid flow through the apparatus to the outlet port from the inlet port. There may also be included apparatus for



selectively connecting the control pressure port of the fluid control apparatus in fluid circuit with the outlet port thereof, whereby a differential seating pressure upon the diaphram member is removed.

3,782,683

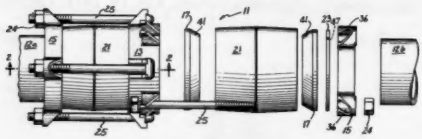
PIPE COUPLINGS

Dennis D. Lee, Oskaloosa, Iowa, and Robert F. Gilchrist, Wichita Falls, Tex., assignors to Clow Corporation, Oak Brook, Ill.

Filed Jan. 23, 1973, Ser. No. 326,050

Int. Cl. F16l *17/00*

U.S. Cl. 251—148 **10 Claims**



A highly versatile pipe coupling which is especially useful in connecting or repairing two ends of pipe that are not coaxially aligned. Bushings allow the same coupling components to connect pipe of different material and wall thickness.

3,782,684

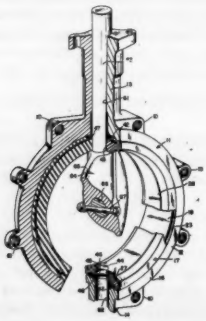
SEAT INSERT FOR BUTTERFLY-TYPE VALVES

Leonard J. Stephens, Pittsburgh, Pa.; Derril D. Granger; John S. McCullagh, both of Canal Fulton, Ohio, and Donald K. Hagar, Macungie, Pa., assignors to Rockwell International Corporation, Pittsburgh, Pa.

Filed Sept. 20, 1971, Ser. No. 181,986

Int. Cl. F16k *1/226*

U.S. Cl. 251—306 **14 Claims**



A butterfly valve comprising an annular body rotatably mounts a closure disc that has peripheral engagement with a resilient seat in the form of a liner unit having an axial snap-in fit within an annular recess around the inner periphery of said body. Bonding between the liner and body may be effected by a layer of epoxy cement.

3,782,685

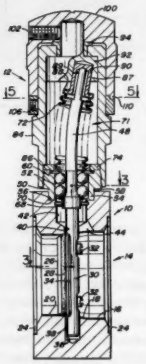
BELLOWS SEALED BUTTERFLY VALVE

Bernard J. Gallagher; Earl D. Shufflebarger, both of Mentor; David M. Simko, Parma Heights; Richard J. Medvick, Brooklyn Heights; John R. Boylan, Cleveland Heights, and Oliver L. Danko, Chesterland, all of Ohio, assignors to Nupro Company, Cleveland, Ohio

Filed July 17, 1972, Ser. No. 272,561

Int. Cl. F16k *1/22*

U.S. Cl. 251—306 **10 Claims**



The specification and drawings disclose a valve particularly suited for use in critical vacuum systems. The valve shown comprises a body having a through flow passage of generally circular cross-section. A butterfly valve disc is positioned in the passage and has an outer periphery adapted to close the passage when rotated to a position transverse to the axis of the passage. A rotatable operating stem is connected to the valve disc and extends outwardly through the body. Joined with the operating stem is an actuating stem which has an outer end portion inclined at an angle relative to the axis of the operating stem. A bellows assembly encloses the actuating stem with a lower portion of the assembly joined to the body. The bellows assembly includes a flexible, gas impervious bellows member which encloses the actuating stem and is inclined throughout a portion of its length at an angle corresponding to the angle of the inclination of the outer end portion of the actuating stem. Additionally, the outer end of the bellows is rotatably engaged with the outer end of the actuating stem. Means are provided in the form of a rotatable housing member for applying a generally radially acting force to the outer end of the bellows assembly to produce rotation of the operating stem and deflection of the bellows without torsional loading of the bellows.

3,782,686

TAPS

George Raymond Cowie, Middlesborough, England, assignor to Cowie Scientific Limited, Yorkshire, England

Filed June 19, 1972, Ser. No. 264,066

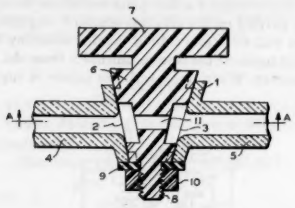
Claims priority, application Great Britain, June 18, 1971, 28,628/71

Int. Cl. F16k *5/02*

U.S. Cl. 251—309 **9 Claims**

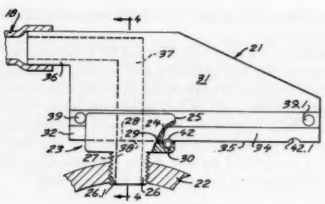
This invention relates to a plug and socket type stopcock,

notably for use in high vacuum apparatus, in which erosion of the fluorinated hydrocarbon polymer plug is reduced by in-



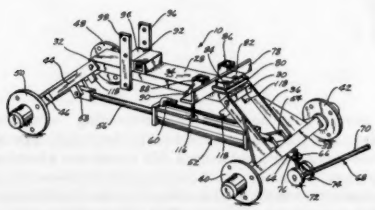
denting the plug face around the orifices of the bore through the plug.

3,782,687
MILKING MACHINE VALVE
Erling Anderson, R. R. 1, Matsqui, British Columbia, Canada
Filed Sept. 13, 1971, Ser. No. 179,636
Int. Cl. F16k *31/44*
U.S. Cl. 251—347 **3 Claims**



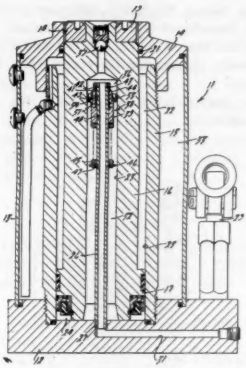
A valve for connecting a teat cup hose of a milking machine to a milk pipe line under vacuum, the valve having a base member connectable to the milk pipe line and a slider member having a projecting nipple and mounted for sliding movement on the base member, the members having milk passages which are moved into register when the teat cup hose is pushed on the nipple and moved out of register when the hose is pulled off the nipple.

3,782,688
JACK DEVICE FOR TRACTORS AND THE LIKE
Dellie J. Scott, Missouri Valley, Iowa, assignor to J. L. Peterson, Missouri Valley, Iowa, a part interest
Filed Feb. 24, 1972, Ser. No. 228,927
Int. Cl. B60p *1/48*; **B66f** *3/00*
U.S. Cl. 254—2 R **3 Claims**



A jack device is disclosed herein for raising a tractor or the like. The jack device comprises a horizontally disposed frame means having a pair of supports pivotally connected at their upper ends to the opposite ends thereof. Spaced apart wheels are provided on the lower ends of the supports. A hydraulic cylinder means extends between the supports and is adapted to pivotally move the supports with respect to the frame means. Means is provided on the upper end of the frame means for engagement with the tractor to support the same thereon. The hydraulic cylinder is extended so that the frame means is lowered to permit the jack to be positioned beneath the tractor. The hydraulic cylinder is then operated to retract the cylinder rod therein which causes the supports to pivotally move towards each other whereby the frame means is raised upwardly into engagement with the tractor which causes the tractor to be raised from its supporting surface.

3,782,689
CONTROL MEANS FOR HYDRAULIC JACK
John M. Barosko, Kenosha, Wis., assignor to Tenneco Inc., Racine, Wis.
Filed Jan. 31, 1972, Ser. No. 222,090
Int. Cl. B66f *3/24*; **F15b** *15/18*
U.S. Cl. 254—93 R **6 Claims**

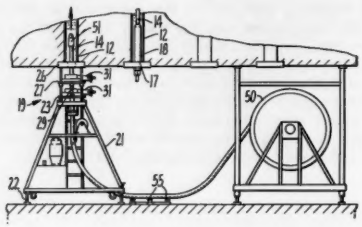


A sliding member between the high and low speed chambers of a two-speed hydraulic jack acts as a combined valve and seal. The member serves to separate these chambers during the quick-raise movement, but automatically connects them when a load is encountered so that the pump will feed both chambers.

3,782,690
APPARATUS FOR THREADING A TENDON THROUGH A SHEATH
Ian Tindal, San Francisco, Calif., assignor to Bechtel International Corporation, San Francisco, Calif.
Division of Ser. No. 11,100, Feb. 13, 1970, Pat. No. 3,719,982.
This application Dec. 8, 1971, Ser. No. 206,027
Int. Cl. B66f *1/00*
U.S. Cl. 254—105 **3 Claims**

A novel jacking system and method are provided for moving a cable through a sheath which includes opposite vertical portions connected by an intermediate arcuate portion. The cable

is relatively heavy, being made up of the order of some 170 to 200 strands of high carbon steel wire, each approximately of



the order of one-quarter inch in diameter. The total length of the cable is of the order of 500 feet while its weight is some 7-1/2 to 10 tons.

3,782,691

HYDRAULIC LIFTING DEVICE FOR LIFTING HEAVY LOADS

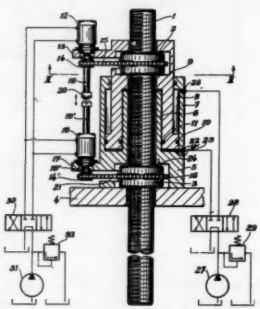
Heinz Lietzke, Neuss, Germany, assignor to Schiess Aktiengesellschaft, Dusseldorf-Oberkassel, Germany

Filed Mar. 1, 1972, Ser. No. 230,779

Claims priority, application Germany, Mar. 9, 1971, P 21 11 244.7

Int. Cl. B66f *1/00*; E02d *21/00*

U.S. Cl. 254—106 **7 Claims**



A hydraulic lifting device for lifting heavy loads, especially by steps, in which two vertically spaced adjusting nuts are arranged on and in meshing engagement with a vertical spindle which is surrounded by an annular cylinder-piston system, the elements of which are relatively movable to each other to perform a major stroke only when at least one of said nuts is being rotated, rotation of either one of the nuts resulting in an axial movement of the spindle.

3,782,692

FIXED SPOOL WINCH MECHANISM

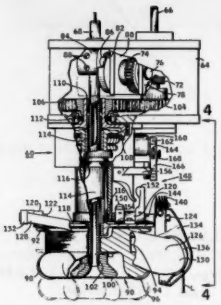
Ernest L. Casco, and Ralph F. Kosic, both of San Diego, Calif., assignors to General Dynamics Corporation, San Diego, Calif.

Filed Feb. 7, 1973, Ser. No. 330,372

Int. Cl. B66c *23/60*

U.S. Cl. 254—139 **16 Claims**

A winch having a spool on which a line or cable is wound for subsequent free-fall deployment of a payload such as a profiling oceanographic sensor. The line secures at one end to the sensor, passing through the hollow center of the spool shaft, level winding onto the spool, and attaches at its opposite end to surface electronics aboard a data station buoy. Upon activation, a motor rotates a bail platform about the spool shaft axis. A bail carried on the rotating platform engages a striker, pivoting the bail to to one side of the line whereby the weight of the sensor tensions the line to unwind it from the spool in a free-fall manner. When deployed, the sensor is supported by



structure above the winch with the line passing freely through the spool shaft.

Retrieval of the sensor is effected by reversing the direction of rotation of the bail platform and shifting the striker linkage to pivot the bail for rewind of the line onto the spool. The bail is thus pivoted through an arc intersecting the vertical axis of the spool shaft, to pick up the deployed line for winding onto the spool as the bail rotates. Level wind of the line is accomplished by reciprocal up and down movement of the spool as the line traverses the sheave of the rotating bail.

3,782,693

VIBRATORY COMPACTOR

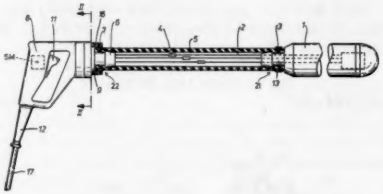
Gotthilf Strohbeck, Leonberg, Germany, assignor to Robert Bosch GmbH, Stuttgart, Germany

Filed Mar. 23, 1972, Ser. No. 237,444

Claims priority, application Germany, Mar. 27, 1971, P 21 14 899.2

Int. Cl. B01f *11/00*

U.S. Cl. 259—1 **13 Claims**



A vibratory compactor for compacting unhardened concrete, and the like, comprises an electrically operated vibration-generating unit having a first mount and a hand-grip unit having a second mount. A rod-shaped vibration-damping connector connects the units and has first and second end portions respectively joined with the first and second mounts. An electric cable supplies energy to the vibration-generating unit, and a switch arrangement selectively permits and interrupts the flow of energy through the cable. The switch arrangement

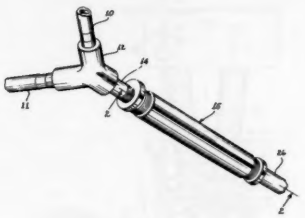
comprises an actuator member mounted on the handgrip unit. The actuator member is movable to a first position permitting the flow of energy, and is permanently biased to a second position interrupting the flow of energy. The possibility of damage to the vibration-generating unit resulting from inadvertent extended operation of the same is prevented, and the compactor may be conveniently employed as a handtool.

3,782,694

APPARATUS AND METHOD FOR MIXING MATERIALS

Charles L. Shano, Phoenix, Ariz., assignor to Western Controls Inc., Pheonix, Ariz.

Filed Sept. 18, 1972, Ser. No. 289,821
Int. Cl. B01f *15/02*
U.S. Cl. 259—4 **6 Claims**



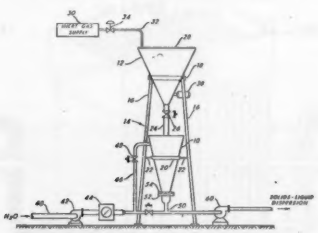
A method and apparatus is disclosed wherein a material or fluid stream is directed along a longitudinal axis of an elongated segmented tubular member. The stream is divided into halves, and each half is directed against a transverse wall of one of the segments wherein the half streams are again divided into quarter streams while simultaneously directed transversely of the tubular member. The quarter streams are directed through passageways in the segment and are subsequently recombined with each quarter stream being combined with a quarter stream from a different half stream. Simultaneous with the recombination, the newly formed half streams are again directed longitudinally of the tubular member.

3,782,695

APPARATUS AND METHOD FOR DISPERSING SOLID PARTICLES IN A LIQUID

Burton B. Sandiford, Placentia, Calif., assignor to Union Oil Company of California, Los Angeles, Calif.

Filed July 10, 1972, Ser. No. 270,495
Int. Cl. B01f *15/02*
U.S. Cl. 259—4 **15 Claims**



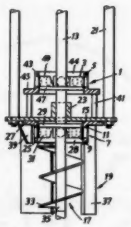
An apparatus and method for dispersing a particulate solid material in a liquid. The apparatus includes a vertically mounted wetted wall funnel having a throat of reduced cross-section at the bottom, a solids feeder hopper mounted above the wetted wall funnel, solids conduit means communicating the solids feeder hopper and the wetted wall funnel, means for flowing liquid over the interior surface of the wetted wall funnel, liquid conduit means attached to and communicating with the throat of the wetted wall funnel for flowing liquid past the throat of the funnel, and a pump for inducing a vacuum in the liquid conduit means at the throat of the funnel. The particulate solid material is distributed onto the interior surface of the wetted wall funnel and the soiids-liquid mixture withdrawn from the funnel and admixed into the liquid flowing past the throat of the funnel.

3,782,696

MIXING DEVICES

Gordon David Love, Waterside, England, assignor to Silverson Machines Limited, Waterside, England

Filed Dec. 28, 1971, Ser. No. 213,147
Int. Cl. B01f *3/12, 5/16*
U.S. Cl. 259—6 **8 Claims**



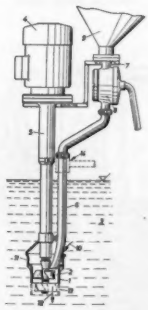
A mixing device comprising rotor and stator elements wherein a screw conveyor is mounted on the rotor shaft and, upon rotation of the shaft, conveys material towards the inlet to the stator element. Associated with the conveyor are stationary guide plates which assist in providing an increased flow of material to the stator element.

3,782,697

APPARATUS FOR DISSOLVING AND ADMIXING COMPONENTS HAVING A HIGHLY DIFFERENT SPECIFIC GRAVITY IN LIQUID TO HIGHLY VISCOUS MEDIA

Roland Karg, Stuttgart, Germany, assignor to Dr. Karg GmbH, Stuttgart, Germany

Filed July 14, 1971, Ser. No. 162,452
Claims priority, application Germany, July 17, 1970, P 20 35 485.2
Int. Cl. B01f *7/16*
U.S. Cl. 259—24 **3 Claims**



In apparatus for dissolving and admixing components having a highly different specific gravity in liquid to highly viscous media, a blade wheel surrounded by a guide ring is used as a

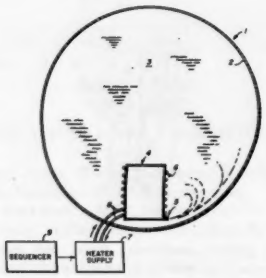
pumping member to create in the liquid medium a suction zone, which contains a discharge opening of a conduit for supplying the substances having a relatively low specific gravity. The supply conduit is provided at its end remote from the blade wheel with a feeder or the like for the powders, and its discharge opening is disposed within the guide ring and as close as possible to the revolving elements of the blade wheel.

3,782,698

HEATER-MIXER FOR STORED FLUIDS

Thomas N. Canning, Sunnyvale, Calif., assignor to The United States of America as represented by the Administrator of the National Aeronautics and Space Administration, Washington, D.C.

Filed Aug. 11, 1972, Ser. No. 280,032
Int. Cl. F17c *5/04*
U.S. Cl. 259—60 **8 Claims**



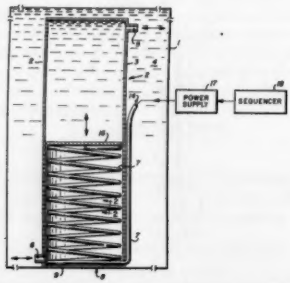
A fluid storage vessel for containing cryogenic fluids including an auxiliary chamber within the storage vessel. The auxiliary chamber is connected in fluid communication with the main storage vessel by means of a jet nozzel. The wall of the auxiliary chamber is heat cycled to produce a corresponding expansion and contraction of the fluid within the auxiliary chamber to produce heating and mixing of the stored fluid by means of jetting the expanded fluid to and fro relative to the stored fluid contents of the vessel.

3,782,699

BIMETALLIC FLUID DISPLACEMENT APPARATUS

Thomas N. Canning, Sunnyvale, Calif., assignor to The United States of America as represented by the Administrator of the National Aeronautics and Space Administration, Washington, D.C.

Filed Aug. 11, 1972, Ser. No. 280,029
Int. Cl. B01f *5/12*
U.S. Cl. 259—98 **10 Claims**



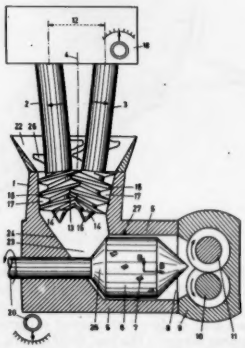
Stirring and heating of stored gases and liquids is accomplished by using the deformation of a bimetallic structure which deforms significantly when heated. The deformation is used to effect gradual or impulsive motion of a piston, vane, wire, or diaphram for displacement of the fluid. The heated bimetallic is also employed for heating the stored fluid.

3,782,700

PLASTIC MIXERS

Ludwig Wittrock, Breddenkampstrasse 121, 4370 Marl, Germany

Filed Sept. 5, 1972, Ser. No. 286,048
Claims priority, application Germany, Sept. 2, 1971, P 21 43 923.6
Int. Cl. B29f *3/02*
U.S. Cl. 259—192 **9 Claims**



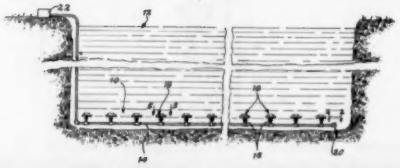
Apparatus for treating thermoplastic raw material, comprising means feeding material to be processed to a plasticizing means wherein the material is plasticized using frictional heat evolved by kneading the material, and means withdrawing and compressing the plasticized material. The temperature of the material being plasticized is controlled by regulating the pressure in the material by varying the rate at which material is fed to or withdrawn from the plasticizing means. The feeding and compressing is effected with minimum friction.

3,782,701

DESTRATIFICATION SYSTEM AND AIR DIFFUSER UNIT FOR USER THEREIN

Harold G. Hunt, 389 Fillmore Ave., East Aurora, N.Y.

Filed Apr. 3, 1972, Ser. No. 240,689
Int. Cl. B01f *3/04*
U.S. Cl. 261—65 **10 Claims**



The system employs a plurality of submerged diffuser units spaced along a supply air feed line and an air-water discharge valve device disposed at the downstream end of the feed line to permit expulsion of substantially all water present in the feed line at the commencement of an operating period. The

diffuser units are in the form of air jet reaction propellers, which effect vertical circulation by both mechanical and diffused air pumping.

3,782,702

APPARATUS FOR MIXING AND TREATING FLUIDS

Robert S. King, 7100 Pampa Pl., Tucson, Ariz.

Filed Dec. 29, 1969, Ser. No. 888,787
Int. Cl. B01f *3/04*
U.S. Cl. 261—87 **12 Claims**

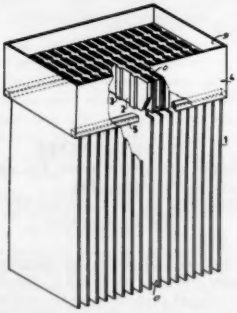
An apparatus for mixing and treating fluids includes a rotatable hollow shaft having an impeller section which is extended into a first fluid. The impeller section includes a plurality of spiral blades which move and agitate the first fluid and an opening adjacent the blades through which a second fluid in the shaft communicates with the first fluid. The movement of the first fluid creates a suction zone which causes the second fluid to be drawn through the shaft and out the opening.

3,782,703

DEVICE FOR MASS AND HEAT TRANSFER

Vaclav Kolar, Prague, Czechoslovakia, assignor to Ceskoslovenska Akademie ved, Prague, Czechoslovakia

Continuation-in-part of Ser. No. 149,244, June 2, 1971, abandoned. This application Nov. 23, 1971, Ser. No. 201,307
Claims priority, application Czechoslovakia, June 8, 1970, 4006/70
Int. Cl. B01f *3/04*
U.S. Cl. 261—112 **9 Claims**



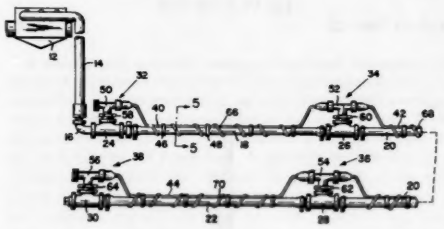
Apparatus for transferring heat and/or mass in fluid to fluid contact apparatus wherein at least one fluid is liquid, comprising a housing in which a plurality of transfer sections are tandemly arranged. Each transfer section comprising a plurality of vertically disposed planar structures spaced from each other by spacers having projections forming gaps for flow of one fluid. The housing being spaced to provide for movement of the other fluid from between the planar structure of one to those of another.

3,782,704

APPARATUS AND METHOD FOR PRODUCING AIR BUBBLES IN A BODY OF LIQUID

Harold J. Schramm, and John R. McCullough, both of West Chester, Pa., assignors to Schramm, Inc., Westchester, Pa.

Continuation of Ser. No. 83,026, Oct. 22, 1970, abandoned. This application Jan. 15, 1973, Ser. No. 323,623
Int. Cl. B01f *3/04*
U.S. Cl. 261—124 **9 Claims**



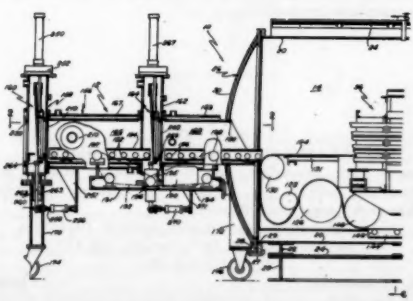
Uniformity, and therefore the effectiveness, of air barriers for confining surface water pollutants is accomplished by improving the uniformity of the air pressure in a perforated bubbling hose. This is achieved by the use of an auxiliary distributing conductor carrying air under high pressure, with a number of spaced interconnections with the bubbling hose having restrictions for dropping the pressure from the high level in the distributing conductor to a relatively low level in the bubbling hose.

3,782,705

CONTINUOUSLY OPERATED VACUUM FURNACE HAVING WORK PART TRANSFER CONVEYOR AND LOAD AND UNLOAD MECHANISM

Herbert W. Westeren, Barrington; Wallace S. Vanderford, Jr., Coventry; William C. Diman, and Vincent Scotto, both of Warwick, all of R.I., assignors to C.I. Hayes Inc., Cranston, R.I.

Filed Dec. 14, 1971, Ser. No. 207,738
Int. Cl. C21d
U.S. Cl. 266—5 R **15 Claims**



A conveyor vacuum furnace in which work parts are periodically introduced and processed without breaking the

vacuum within the furnace, and including a front loading station and a rear discharge station that are provided with spaced door assemblies between which confined chambers are defined for isolating the work parts, so that the work parts may be introduced into the furnace and discharged therefrom during continuous operation of the furnace.

3,782,706

REACTOR FOR PREPARING METAL POWDERS

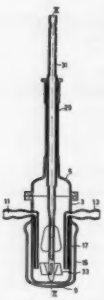
Werner Muhlpfordt, Ludwigshafen, Germany, assignor to U.S. Philips Corporation, New York, N.Y.

Filed Mar. 24, 1972, Ser. No. 237,756

Claims priority, application Germany, Apr. 1, 1971, P 21 15 928.4

Int. Cl. C22b *5/00*

U.S. Cl. 266—22 **3 Claims**



A reactor for preparing metal powders by reduction of aqueous solutions with a sodium borohydride solution, which reactor comprises a reaction vessel closed by a cover and having two inlet members, a stirring device, an overflow and a cooling jacket. A gas outlet is connected to the cover on the side of the overflow said gas outlet enclosing an acute angle with the shaft of the stirring device. In the operating position of the reactor, the center line of the gas outlet extends vertically so that the hydrogen formed during the reaction and the poisonous diborane formed in a subreaction are removed without hindrance. Due to the inclined position of the stirring device, the precipitated metal powder and the mother liquor are swung into the overflow.

3,782,707

APPARATUS FOR PRODUCING ALUMINUM

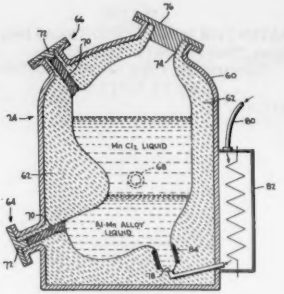
Charles Toth, Westwego, and Harry Gordon Harris, Jr., Metairie, both of La., assignors to Applied Aluminum Research Corporation, Westwego, La.

Continuation of Ser. No. 138,663, April 29, 1971. This application Jan. 24, 1973, Ser. No. 326,337

Int. Cl. C22b *21/02*

U.S. Cl. 266—35 **5 Claims**

In the production of aluminum from the reaction of aluminum trichloride and molten manganese wherein the reaction is carried out under conditions such that manganese dichloride, which is one of the principal by-products of the reaction, is formed as a separate substantially pure liquid phase. This reaction is carried out in a special reactor which is



pressure tight, has two pour spouts, and heating means for the aluminum trichloride which is introduced under pressure into the reactor at the bottom.

3,782,708

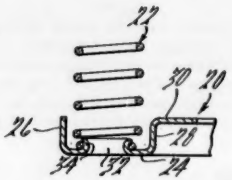
SPRING ASSEMBLY AND METHODS AND MACHINES FOR THE MANUFACTURE THEREOF

Donald O. Dulude, and Paul H. Winbigler, both of Coldwater, Mich., assignors to Kuhlman Corporation, Troy, Mich.

Filed Dec. 1, 1971, Ser. No. 203,534

Int. Cl. F16f *3/04*

U.S. Cl. 267—91 **12 Claims**



Springs secured to a stamped plate by staking, and stress-relieved in place, and methods and machines for performing those operations.

3,782,709

PULSE DAMPENER

Kenneth J. Gildner, North Palm Beach, Fla., assignor to Milton Roy Company, St. Petersburg, Fla.

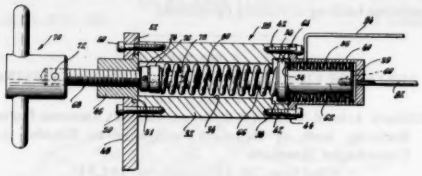
Filed Mar. 30, 1972, Ser. No. 239,749

Int. Cl. F16f *5/00*

U.S. Cl. 267—114 **10 Claims**

A pulse dampener particularly advantageous for removing cyclical pressure gradients produced by the positive displacement pump in a liquid chromatographic system. It comprises a bellows which substantially fills a cylindrical chamber. The chamber is connected to the pump outlet and column inlet. A compression spring expands the bellows against the force of the liquid. Compression of the spring is adjusted by a screw thread and two stops limit the permissible travel of the bellow face.

The foregoing abstract is not to be taken either as a complete exposition or as a limitation of the present invention, and in order to understand the full nature and extent of the



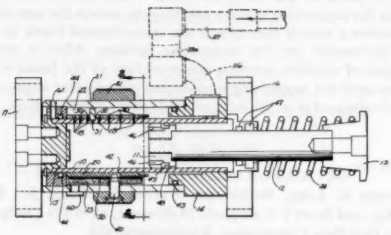
technical disclosure of this application, reference must be had to the following detailed description and the accompanying drawings as well as to the claims.

3,782,710

ADJUSTABLE HYDRAULIC LINEAR DECELERATOR

Donald A. Selke; Layne F. Tekulve, and Richard R. Schmid, all of Cincinnati, Ohio, assignors to The Sheffer Corporation, Cincinnati, Ohio

Filed Nov. 8, 1972, Ser. No. 304,611
Int. Cl. F16f *5/00*
U.S. Cl. 267—118 **6 Claims**



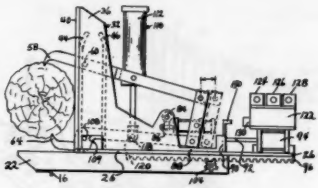
The application discloses an adjustable hydraulic linear decelerator, which may be either of the spring return type having an internal accumulator, or of the air return type having an external accumulator. The device comprises a cylinder having a piston which operates, upon an impact, against hydraulic fluid charged into the cylinder. The cylinder has, along a generatrix, a series of exponentially spaced apertures, and is embraced by a sleeve having along a generatrix, a series of obturating slots of the same minimum axial width as said apertures, and cooperating with said apertures respectively. The sleeve is surrounded by a reservoir tube, annularly spaced therefrom, and is coupled to said tube so that it may be rotated by rotating said tube. The sleeve also has a guide slot cooperating with a pin fixed to said cylinder to limit the extent of rotation of said sleeve to the circumferential extent of said obturating slots. The obturating slots may be angularly disposed with respect to the circumference while the guide slot is circumferential, so that, upon rotation of the sleeve between limits, the slots in effect go from an obturating position to an open position without axial movement of the sleeve. Alternatively, the obturating slots may be circumferential while the guide slot is angularly disposed, so that rotation of the sleeve is accompanied by an axial displacement thereof by substantially the width of the obturating slots. In this case the coupling is by means of a pin and slot connection to provide for the necessary axial movement.

3,782,711

SAWMILL DOG ASSEMBLY

Hubert T. Montgomery, Chestnut St., Delta, Pa.

Filed June 15, 1972, Ser. No. 263,282
Int. Cl. B27b *29/02*
U.S. Cl. 269—31 **7 Claims**



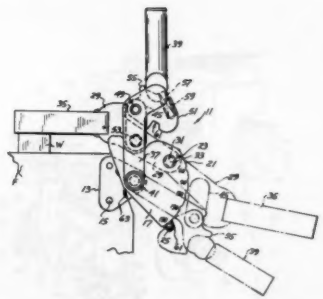
A sawmill dog assembly having a headblock supported for longitudinal slidable movement upon a base plate carried by a supporting channel member to be fixed to a sawmill carriage. Upper and lower dog members are arranged for limited floating movement in vertical and horizontal directions relative to the front face of the headblock. A plurality of fluid operated cylinder units respectively operate the outer ends of the dog members vertically to engage a log or plank to be sawed, move the headblock and dog members as a unit relative to the base plate, and move the outer ends of the dog members horizontally relative to the front face of the headblock.

3,782,712

TOGGLE CLAMP WITH DETENT OPEN GUIDED ARM

Leland F. Blatt, 821 Lakeshore Dr., Grosse Pointe Woods, Mich.

Filed Sept. 28, 1972, Ser. No. 292,877
Int. Cl. B25b *5/12*
U.S. Cl. 269—228 **5 Claims**



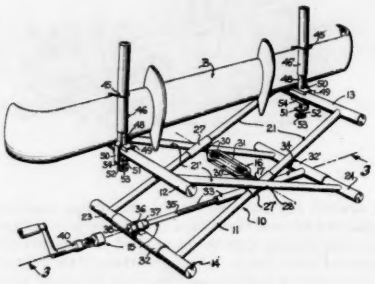
A toggle clamp comprises a pivot base mountable upon a support with a pair of side plates adjustably mounted upon said pivot base in a pre-selected angular position and guidably receiving therebetween a pivot arm pivotally mounted upon said plates and terminating in a work piece engaging clamp arm. A U-shaped handle link with a laterally extending handle is pivotally mounted over and upon the guide plates and pivotally mounts interiorly a pair of arm links at their one ends, with the other ends of said arm links pivotally connected to the handle link. A yieldable latch is positioned between the arm links and pivotally connected thereto and adapted to interlock with a latch pin spanning said guide plates when the handle has been moved to a release position.

3,782,713

ONE MAN HOLDER FOR VEHICLES DOORS, BUMPERS AND THE LIKE DURING REPAIR THEREOF

Robert H. Yount, 1304 Hillcrest Rd., Hollister, Calif.

Filed Sept. 7, 1971, Ser. No. 178,065
Int. Cl. B25h *1/10, 5/00*
U.S. Cl. 269—297 **4 Claims**



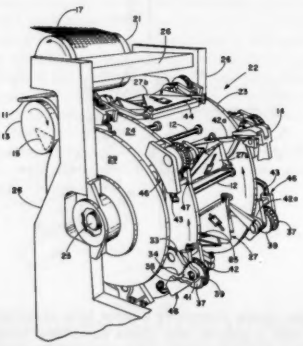
A holder for holding vehicle parts during repairs in the nature of a pair of scissor-frames pivoted to open and close by a jack screw between the base ends of the frame and adjustable for tilting to support a vehicle door or bent bumper at an angle relative to base and means for locking the scissors frames in set positions.

3,782,714

FOLDING APPARATUS

Harvey J. Spencer, Green Bay, and Eugene W. Wittkopf, Little Suamico, both of Wis., assignors to Kimberly-Clark Corporation, Neenah, Wis.

Filed Sept. 2, 1971, Ser. No. 177,301
Int. Cl. B65h *45/00*
U.S. Cl. 270—69 **8 Claims**



Apparatus for folding sheet material in which apparatus panels disposed in opposed relation form a receiving surface for the receipt of sheet material to be folded. The panels are provided with vacuum ports which the sheet material overlies and the production of suction pressure retains the sheet material securely on the forming board. The panels are pivotally mounted such that they are movable between a position in which the oppositely disposed panels lie in substantially planar relation and a position in which the panels are in substantially parallel relation. Tucking of sheet material transversely to provide fold lines in the material is accomplished by shaping the panels to appropriate configurations. A preferred form of the apparatus includes a plurality of the folding boards supported on a carrier permitting continuous operation. Additionally, mechanism mounted on the carrier provides for assisting tucking or folding operations.

3,782,715

FEELER DEVICE, ESPECIALLY FOR PHOTOCOPYING APPARATUS

Richard Arlund Norgaard, Ballerup, and Rex Stemann Larsen, Rodovre, both of Denmark, assignors to Eskofot A/S, Copenhagen, Denmark

Filed Sept. 28, 1972, Ser. No. 292,912
Int. Cl. B65h *7/00*
U.S. Cl. 271—57 **3 Claims**

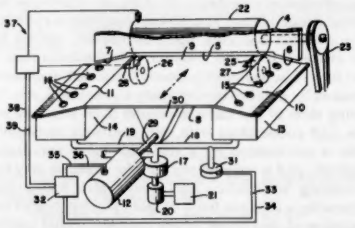
A feeler device comprising a freely rotatable feeler wheel member having three active surfaces lying on an imaginary cylinder. The feeler member is mounted on an arm and rests by its own weight against a supporting surface. The leading edge of a movable sheet formed blank strikes one of the the active surfaces and turns the feeler wheel so that it is lifted from the supporting surface and thereby moves the arm which activates a switch that causes the sheet-formed blank to stop its movement on the supporting surface. After a certain degree of rotation, another active surface of the feeler wheel rests upon the supporting surface and is thereafter engaged by the leading-edge of the next movable sheet-formed blank.

3,782,716

DEVICE FOR SELECTING DATA CARDS

Thomas R. Long, Melbourne; Warren H. Miller, Jr., Palm Bay, and Scott V. Campbell, Melbourne, all of Fla., assignors to Digi-Data Corporation, Bladensburg, Md.

Filed June 29, 1972, Ser. No. 267,688
Int. Cl. B65h *3/12*
U.S. Cl. 271—99 **7 Claims**



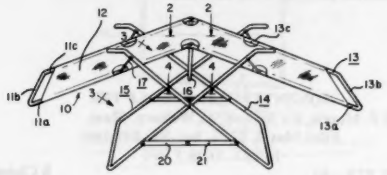
A device for selecting data cards comprising a table means movably mounted beneath a hopper means containing a stack of cards, means operatively associated with said table means for moving at least a portion of the bottom card in said stack of cards downwardly onto said table means and holding said card on said table means as said table means is moved into operative association with means for engaging said card and withdrawing the card from said table means, said means for moving said card being controlled in cooperation with movement of said table means.

3,782,717

PIVOTAL BODY-SUPPORTING EXERCISING APPARATUS

Daniel Berlin, Rydal, Pa., assignor to General Home Products Corp., Burlington, N.J.

Filed Mar. 27, 1972, Ser. No. 238,044
Int. Cl. A63b 21/00
U.S. Cl. 272—58 1 Claim



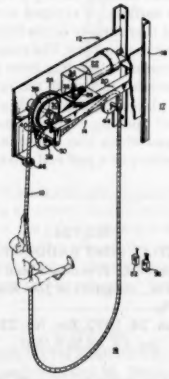
An exercising apparatus adapted to support a person and movable to a plurality of body supporting contours. The exercising apparatus includes a cloth covered support frame having at least two support frame elements which are movable with respect to each other. They are also rotationally connected to a base frame which acts as a support or stabilizing platform for the exercising apparatus. The support frame is mounted to the base frame through a plurality of generally Z-shaped linkage mechanisms which are pivotally mounted to both the support frame elements and the base frame.

3,782,718

ROPE CLIMBING MACHINE

Clarence E. Saylor, 904 Second Ave. North, Kent, Wash.

Filed Apr. 28, 1972, Ser. No. 248,679
Int. Cl. A63b 7/04
U.S. Cl. 273—60 4 Claims



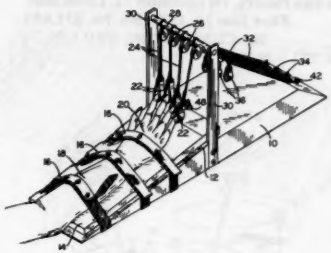
A power operated endless rope is moved a selected predetermined speed either up or down to allow a climber to climb up or down on the rope while remaining safely close to the floor.

3,782,719

FINGER EXERCISING DEVICE

Norma Jean Kuhlman, R.F.D. No. 1, Mendon, Ohio

Filed Apr. 21, 1972, Ser. No. 245,837
Int. Cl. A63b 21/00, 23/00
U.S. Cl. 272—67 11 Claims



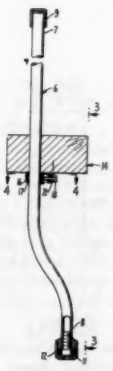
An exercising device, especially for exercising the fingers, on which a base member is provided, on which the forearm is adapted to rest with the hand in a predetermined position, while finger loops carried by the device are disposed near the said position and are adapted for receiving the fingers of the hand. Biasing springs connected to the finger loops resist movement thereof so that the fingers can be exercised by flexing thereof. The finger loops are arranged so as to be in two differently suspended sets so that the hand can be disposed with the palm up when using one loop set or the palm down when using the other loop set whereby the fingers can be exercised in different manners.

3,782,720

OFFSET TUBULAR STILTS WITH UNDERLYING HEIGHT ADJUSTABLE FOOTREST SUPPORTS

Sheldon E. Thorson, 5442 Greenfield Way, Pleasanton, Calif.

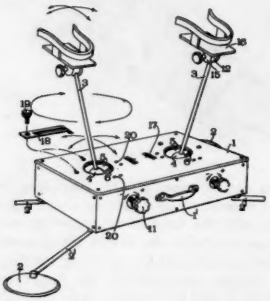
Filed Jan. 4, 1973, Ser. No. 320,902
Int. Cl. A63b 25/00
U.S. Cl. 272—70.1 7 Claims



An improved stilt structure is provided having improved stability. The foot end of each stilt is offset slightly providing better balance and making walking easier. Structurally, the stilt comprises an elongate tubular member having parallel but offset upper and lower sections with a foot rest movably supported on the upper section adjacent to a generally S-shaped

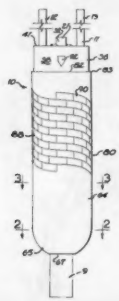
curved portion joining the upper and lower sections. A separate clamp member is movably secured to the upper section beneath the foot rest to support the foot rest in different adjusted positions on the upper section.

3,782,721
PHYSICAL TRAINING DEVICE
Franco Ugo Passera, via Idomeneo 72, Lecce, Italy
Filed June 10, 1971, Ser. No. 151,693
Int. Cl. A63b *21/00*; **G01l** *5/02*
U.S. Cl. 272—79 D **8 Claims**



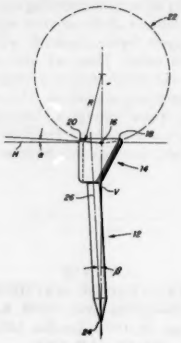
A physical training device comprising a casing from which two movable rods are extending and have a pedal or handgrip at their free ends, the lower ends being mounted in ball joints for movement in all directions within a certain angle or only in a substantially vertical angular direction, the movement of the ball of the ball joints within the casing being restrained by appropriate adjustable means.

3,782,722
VARIABLE FRICTION-RESISTANCE ROPE EXERCISING DEVICE
Ronald W. Webb, N. 7106 Winston Dr., Spokane, Wash.
Filed June 12, 1972, Ser. No. 262,147
Int. Cl. A63b *21/00*
U.S. Cl. 272—79 A **6 Claims**



A variable friction-resistance rope exercising device having a shaft with an eyelet at one end and a turn knob mounted at the other end. The knob has apertures therethrough to enable free ends of a rope to be threaded through the apertures, a rope is spiralled around the shaft and through the eyelet so that a user can pull alternately on the ends against the friction developed between the rope and the shaft. The knob is spring biased outwardly away from the eyelet to connect with the shaft so that no rotation of the knob with respect to the shaft will be permitted during the pulling on the free ends of the rope. To increase the number of turns of the rope on the shaft the knob is pushed inwardly against the bias of a spring to disconnect the knob from the shaft and then the knob is rotated. When it is desired to release the frictional resistance, the user holds onto the knob and pulls on both free ends of the rope to pull the shaft toward the knob compressing the spring to disconnect the shaft from the knob.

3,782,723
NON-INTERFERING GOLF TEE
Ronald P. Morris, 8½ Second St., Woburn, Mass.
Filed May 1, 1972, Ser. No. 249,164
Int. Cl. A63b *57/00*
U.S. Cl. 273—33 **8 Claims**

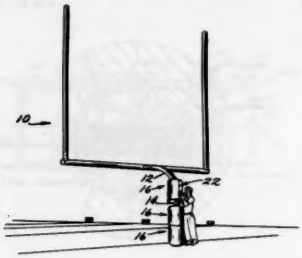


A golf tee designed in such a manner that a golf ball driven off the tee does not encounter a section of the tee which obstructs the trajectory of the golf ball. The golf tee includes a specially designed head section having a top with an upward opening curved rear surface. A ramped surface extends forward from the curved rear surface to the front of the tee and is inclined slightly above the horizon. The ramped surface has an upward opening curvature extending from side to side across the head which, in combination with the rear curved surface, supports a golf ball placed on the tee. The front of the head section has a forward opening curvature extending from side to side across the head which also assists in preventing an obstruction to the trajectory of a golf ball driven off the tee.

3,782,724
GOAL POST PADDING
Joel I. Rottman; Howard L. Freedman, and Melvin Freedman, all of Hollywood, Fla., assignors to Joel Rottman Enterprises, Inc., Hollywood, Fla.
Filed Jan. 24, 1972, Ser. No. 220,134
Int. Cl. A63b *67/00*
U.S. Cl. 273—55 R **4 Claims**

There is provided in accordance with the most preferred described embodiment of the invention a stack of tubular right circular cylindrical bodies of resilient foamed plastic material, each having an adherent coating of flexible plastic-based paint. Each body is split along a radiating, longitudinal axis-containing plane and provided with cooperating fasteners within the split to permit easy assembly of the padding about a

goal post standard. The color of the flexible coating on adjacent bodies may be different, e.g., to match school colors. A preferred composition is polyurethane plastic foam used in conjunction with a polyurethane-based paint. The exterior of the bodies may be an appropriately colored integral skin on the foamed bodies.



3,782,725

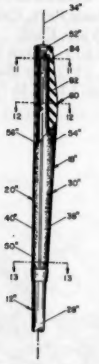
GOLF CLUB WITH ECCENTRIC GRIP THEREFOR

James D. Giambazi, 12 Abbott St., Cumberland Hill, R.I.

Filed May 1, 1972, Ser. No. 249,045

Int. Cl. A63b *53/14*

U.S. Cl. 273—81.3 **1 Claim**



An improved grip for a golf club having a head, hosel, shaft and a grip including an eccentric grip having generally normal external dimensions, the grip including a thick portion extending longitudinally along the grip on the inner side of the shaft corresponding to the face of the club and a thin portion extending along the grip on the other, outer, side of the shaft.

3,782,726

FOOTBALL GAME WITH MAGNETIC CONTROL RODS

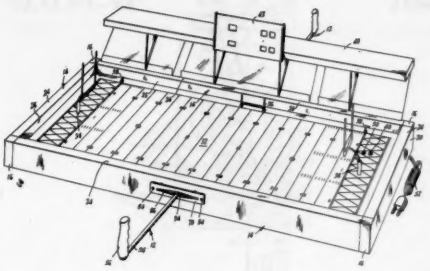
Donald Huffman, and Richard M. Majewski, both of Westmount, Montreal, Canada, assignors to Coleco Industries, Inc., Hartford, Conn.

Filed July 26, 1971, Ser. No. 166,188

Int. Cl. A63f *7/06*

U.S. Cl. 273—94 R **17 Claims**

Game apparatus includes a game board having a plurality of channel-defining guide members pivotally mounted at spaced locations adjacent its periphery. Each of the guide members slidably mounts a control member, and each of the control members in turn supports a permanent magnet beneath the playing portion of the game board. The control members can be oriented in their respective guide members to slide magnetically susceptible player pieces upon the upper surface playing portion, and the apparatus may in addition include a vibrating mechanism to provide a basic mode of propulsion for teams of player pieces.



3,782,727

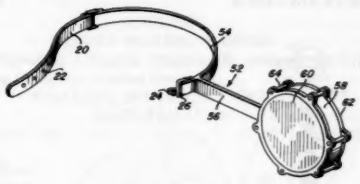
WAIST MOUNTED SOUNDING TARGET AND TETHERED BALL

Scheina E. M. Chirnomas, 406 Washington St., Boonton, N.J.

Filed July 29, 1971, Ser. No. 167,290

Int. Cl. A63b *71/00*

U.S. Cl. 273—97 R **5 Claims**



A waist clamp in the form of a generally semi-circular member constructed of resilient material such as plastic which clampingly engages the waist area of a child using the device with a paddle or similar device mounted thereon and projecting therefrom. The user's body is alternately twisted from side to side to strike opposite sides of the paddle. In the preferred embodiment the paddle is a hollow drum and produces a distinctly higher pitched sound when struck by the ball near the peripheral edge of the drum heads.

3,782,728

SINKING VESSEL SIMULATION APPARATUS

Norio Yasuda, Soka, Japan, assignor to Sega Enterprises Kabushiki Kaisha, Tokyo, Japan

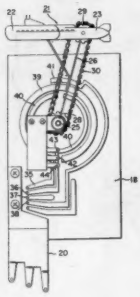
Filed Sept. 12, 1972, Ser. No. 288,344

Int. Cl. F41j *7/01*

U.S. Cl. 273—101.2 **6 Claims**

A sinking vessel display apparatus which comprises a model of a vessel comprising two or more sections, arms for supporting the vessel sections in an assembled state to form a complete vessel in a normal phase of the display apparatus and

for supporting the vessel sections in a separated state to form a destroyed vessel in a sinking phase of the display apparatus. A mechanism is supplied for driving the support arms into the sinking phase from the uppermost support position of the vessel sections in the normal phase where the assembled complete vessel is held substantially along a horizontal line. The respective vessel sections are moved downwardly as they are separated from each other and at least one of the sections is inclined with respect to the horizontal line.



3,782,729

BALL GAME

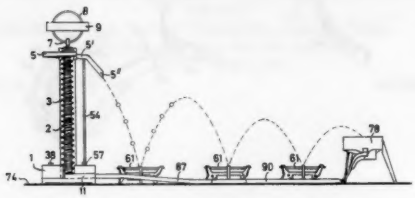
Max Ernst, Lohengrinstrasse 14, Nurnberg, Germany

Filed Feb. 2, 1972, Ser. No. 222,913

Claims priority, application Germany, Nov. 5, 1971, P 21 55 009.4; Feb. 4, 1971, P 21 05 104.7; Dec. 8, 1971, P 21 60 769.2

Int. Cl. A63f *7/02, 7/10*

U.S. Cl. 273—138 A **29 Claims**



A game device using heavy balls in which balls are discharged in a certain direction from an elevated point of a supply station and progress in free jumps along jumping stations to a catching station. The balls return along a trough from the catching station to the bottom of the supply station and are elevated therein to the point of discharge of the balls from the supply station. The catching station can be arranged to trap the caught balls in identified pockets, or channels, to provide for game possibilities.

3,782,730

GOLF BALL

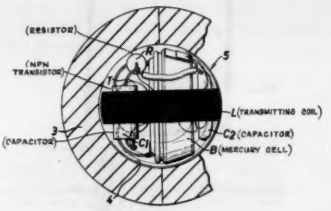
Stephen Alexander Horchler, Eskbank, Scotland, assignor to Euronics Limited, Edinburgh, Scotland

Filed Dec. 2, 1971, Ser. No. 204,109

Int. Cl. A63b *43/00, 43/06*

U.S. Cl. 273—213 **9 Claims**

This invention relates to an electronic golf ball comprising a central resilient sphere, a mass of elastic material surrounding the sphere and an outer casing, the central sphere including an electric squegging oscillator circuit, a battery therefor and a transmitting coil, all enclosed in a spherical mass of a set resin which forms a solid core, the spherical mass being located with close fit in a hollow spherical cavity formed in the central resilient sphere. The battery is a mercury cell located within the transmitting coil, as are the other components of the squegging oscillator circuit. The electrical circuit may include components which permit the oscillator to be turned on and off when the golf ball is brought into and then moved out of an A.C. magnetic field having a predetermined frequency.



3,782,731

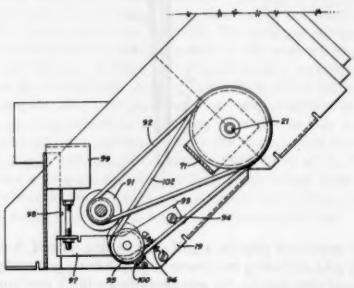
APPARATUS FOR OPERATING ON TAPE IN TAPE CARTRIDGES

William C. Bennett, Menlo Park, Calif., assignor to Novar Corporation, Mountain View, Calif.

Division of Ser. No. 22,619, March 25, 1970. This application May 1, 1972, Ser. No. 248,897

Int. Cl. G11b *15/18*

U.S. Cl. 274—4 D **2 Claims**



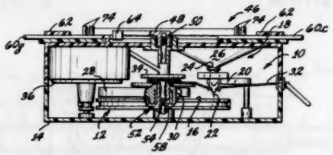
An apparatus including a transducer and a capstan for operating on tape in a tape cartridge having means for receiving the cartridge and positioning the transducer with respect to the cartridge, guide means for guiding the tape past the transducer, drive means for reversibly driving the capstan whereby to move the tape past the transducer selectively in either direction, and sensing means for sensing the beginning and end of tape. The drive means features a pair of pulleys mounted in axially spaced relation on the capstan shaft and driven in opposite directions by a single motor, and electromechanically actuated clutch means selectively engageable with either pulley for coupling that pulley to the shaft.

3,782,732

SELECTABLE MESSAGE VOICE UNIT

William F. Summerfield, Huntington Beach, Calif., assignor to Mattel, Inc., Hawthorne, Calif.

Filed July 10, 1972, Ser. No. 270,113
Int. Cl. G11b 3/00; A63h 3/33
U.S. Cl. 274—9 RA 7 Claims



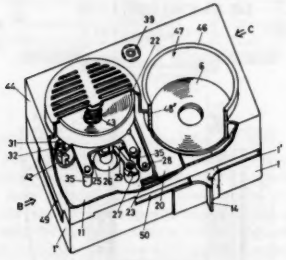
A toy phonograph of the type wherein one of several record tracks to be played is determined by the initial rotational position of the turntable when it begins rotating in a forward direction, in which the mechanism for determining the initial turntable position includes a pawl arm fixed to the turntable and several detents spaced around the turntable that can prevent reverse rotation of the pawl arm past a selected position. A mechanism for assuring that only one of the several detents are at an inward position to engage the pawl at any time, includes a steel band encircling the pawl arm and engaged with the detents, and positioners that hold the band so the band is "puckered in" at one location to hold a detent inwardly at that location. When another detent is pushed in so it "puckers in" another band location, any detent which was inward is automatically moved out.

3,782,733

MINIATURE PHONOGRAPH HAVING RESTARTER MECHANISM

Katsumi Watanabe, No. 371, Ozenzi, Kawaski, Japan

Filed Oct. 26, 1971, Ser. No. 192,436
Int. Cl. G11b 25/04, 17/08
U.S. Cl. 274—9 B 2 Claims



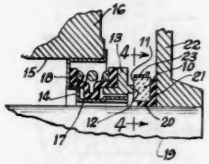
A miniature phonograph having a restarter device, comprising a receiving plate adapted to receive thereon a plurality of reserve discs contained in a vertically stacked-up manner in a top- and bottom- opened cylinder, a turntable carrying a disc thereon, and a disc outlet port, said receiving plate, turntable and outlet port being at the same horizontal elevation and arranged contiguous to each other in succession, means for transferring said reserve discs on said receiving plate onto said turntable successively from the lowermost one and setting the transferred disc on said turntable, means for controlling operation of said turntable, and means for releasing the set condition of the disc on the turntable and discharging that disc to the outside of the phonograph from said outlet port.

3,782,734

TALKING BOOK, AN EDUCATIONAL TOY WITH MULTI-POSITION SOUND TRACK AND IMPROVED STYLUS TRANSDUCER

Stanley Krainin, 401 Rutland Ave., Teaneck, N.J.

Filed Mar. 15, 1971, Ser. No. 123,988
Int. Cl. G11b 3/10, 3/72, 3/78
U.S. Cl. 274—9 R 2 Claims



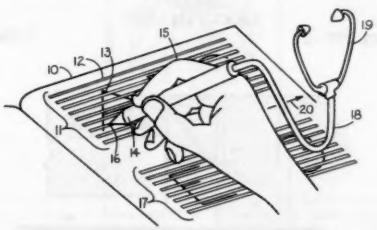
For use in a talking book consisting of one or more pages containing visual material superimposed on or in juxtaposition with the sound grooves on each page, sets of undulated lateral or hill and dale sound grooves made an integral part of each page, each groove in a set recorded identically with every other groove in that set; a hand held stylus transducer capable of being held in a variety of positions as it is manually moved, its stylus tip engaging and reproducing sound from either wall of a sound groove in any set of grooves, and containing an integral tapered shield to protect the page and user from the substantially sharp point of the stylus should the transducer be mishandled on or off the page.

3,782,735

BANDED SEALING WASHER

Eugene Novosad, Arlington Heights, Ill., assignor to Crane Packing Company, Morton Grove, Ill.

Filed July 6, 1971, Ser. No. 159,752
Int. Cl. F16j 15/16
U.S. Cl. 277—22 5 Claims

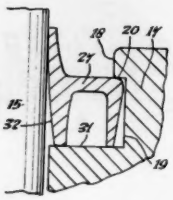


A sealing washer for rotary mechanical seals, said washer being made of a hard brittle material such as ceramic and subject to cracking and disintegration under thermal shock, the washer being protected against unequal expansion due to such thermal shock by a metal band formed as a stamping and tapered so that at one end it is expanded over the washer and at its other end it has a slight clearance with respect to the washer. The band is made rigid to retain its shape by forming a radial flange at its larger end and a radius at the base of the flange serves to locate the washer in the band during assembly. The band is made to have a coefficient of expansion which is substantially the same as that of the washer.

3,782,736
SCRAPER RINGS

Peter Reginald Valente, Ealing, England, assignor to Hallite Holdings Limited, Hampton, Middlesex, England

Filed Dec. 7, 1971, Ser. No. 205,646
Claims priority, application Great Britain, Dec. 10, 1970, 58,778/70
Int. Cl. F16j 15/32
U.S. Cl. 277—24 9 Claims

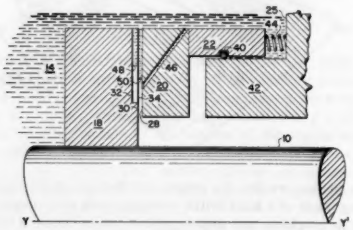


A scraper ring has a scraping edge on a frusto-conical scraper member extending in one axial direction and an annular channel body, the mouth of the channel opening in the opposite axial direction. The material is a hard but firmly resilient plastics material such as nylon. The scraper member joins the channel at its essentially planar base so that the scraper member and radially inner side wall of the channel are continuous. The scraper ring is preferably received in the chamber of a one-piece housing which is radially oversize so that the ring may float radially, being axially retained by an overhang in the wall of the housing. It is fitted by being forced through a restricted mouth opening of the housing.

3,782,737
SPIRAL GROOVE SEAL

Lawrence P. Ludwig, Fairview Park, and Thomas N. Strom, North Olmsted, both of Ohio, assignors to The United States of America as represented by the Administrator of the National Aeronautics and Space Administration, Washington, D.C.

Division of Ser. No. 54,540, July 13, 1970, Pat. No. 3,675,935, which is a continuation-in-part of Ser. No. 723,465, April 23, 1968, abandoned. This application Jan. 24, 1972, Ser. No. 220,251
Int. Cl. F16j 15/34
U.S. Cl. 277—27 7 Claims

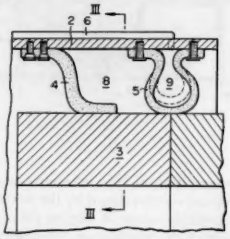


Mating flat surfaces inhibit leakage of a fluid around a stationary shaft. A spiral groove pattern produces a pumping action toward the fluid when the shaft rotates which prevents leakage while a generated hydraulic lifting force separates the mating surfaces to minimize wear. Provision is made for placing these spiral grooves in communication with the fluid to accelerate the generation of the hydraulic lifting force.

3,782,738
TAIL SEAL FOR A SHIELD TYPE TUNNELING MACHINE

Takuya Ohira; Shunta Shiraishi; Hiroshi Matsushima; Yukiya Kato; Kiyomitsu Shimokawa, all of Tokyo, and Hiroshi Yoshida, Chiba, all of Japan, assignors to Nishimatsu Construction Company Limited, Tokyo, Japan

Filed Sept. 5, 1972, Ser. No. 286,303
Int. Cl. F16j 15/40, 15/14
U.S. Cl. 277—58 1 Claim

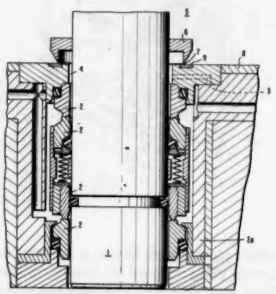


A tail seal mechanism in a shield type tunneling machine, said tail seal mechanism comprising an L-type annular seal of an elastic material installed to the inner periphery of the tail such that the tongue portion of the seal faces rearwardly and a U-type annular seal of an elastic material installed to the inner periphery of said tail rearwardly of and parallel to said L-type annular seal, said U-type seal being adapted such that it can be inflated by an internal fluid, as required.

3,782,739
METHOD AND APPARATUS FOR KEEPING FREE THE AGITATOR SHAFT SEALS FROM POLYMERIDE IN POLYMERIZATION VESSELS WITH BOTTOM DRIVE

Herbert Kahanek; Karl-Heinz Bohmer; Willi Schiemann, and Gunter Beckmann, all of Marl, Germany, assignors to Chemische Werke Huls Aktiengesellschaft, Marl, Germany

Filed Apr. 21, 1971, Ser. No. 135,865
Claims priority, application Germany, Apr. 21, 1970, P 20 19 017.4
Int. Cl. F16j 9/00, 15/16
U.S. Cl. 277—62 8 Claims

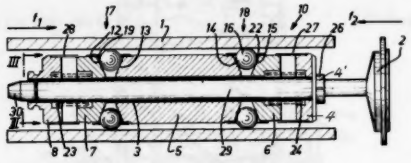


A method and apparatus for keeping an agitator shaft seal free from polymeride in polymerization vessels with bottom drive and contents in excess of 20 m^3, in which a flushing liquid is supplied from the outside into the channel connecting the mechanical seal of the agitator shaft with the vessel interior space, whereby the liquid reaches the vessel interior space from the connecting channel with an average minimum velocity of about 20 cm/sec.

3,782,740
CENTERING CHUCK

Jean-Pierre Peyrot, 1, avenue de la Division du general Leclerc, Villejuif, France

Filed Aug. 16, 1971, Ser. No. 171,875
Claims priority, application France, Aug. 21, 1970, 7030820
Int. Cl. B23b *31/40*
U.S. Cl. 279—2 **5 Claims**

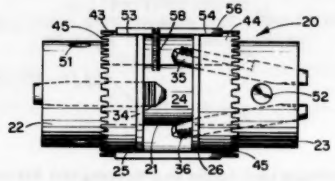


Tool-carrying centering chuck in which two mobile sleeves along a tube are urged towards one another against a central sleeve by antagonistic or counter springs, the facing conical lateral surfaces of said sleeves being designed to receive bearing balls and to push them outwardly against the inner surface of a tube to be treated during a welding or circular machining operation without mounting on a lathe being necessary.

3,782,741
UNITARY, DOUBLE ENDED CHUCK OR COUPLING

Alfred Laurenti, 35 Essex St., Lawrence, Mass.

Filed Oct. 20, 1972, Ser. No. 299,626
Int. Cl. B23b *31/04*
U.S. Cl. 279—62 **5 Claims**



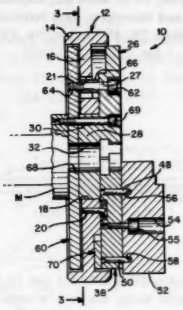
A double ended chuck, connector or shaft coupling includes a pair of back-to-back key operated chucks having a common main body upon which one set of oppositely disposed inclined jaws extends beyond and moves in the spaces between the jaws of the opposite set. The ring gears at each end are split for radial insertion behind the respective end heads and are held in place by split covers in turn held in place by a cylindrical shell sleeved thereover.

3,782,742
THREE JAW CHUCK APPLICATION

Anton Fink, Albertson, and Harold Wentworth, Lake Grove, both of N.Y., assignors to Metrology Systems Corp., Plainview, N.Y.

Filed Dec. 27, 1971, Ser. No. 212,483
Int. Cl. B23b *31/16*
U.S. Cl. 279—110 **25 Claims**

A chuck adapted to be mounted on a machine tool such as a lathe or the like is provided with three radially movable jaws. The jaws are displaced by cam means that engage each of the jaws and move transversely thereto. A rotatable housing is

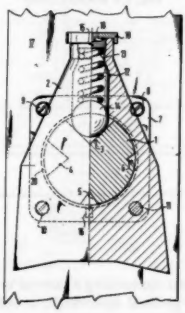


coupled to the cam means in order to move the cam means in a chord-wise direction and thereby displace the jaws in a radial direction.

3,782,743
SKI SAFETY BINDING ELEMENT

Brigette Sittmann, Stuttgart, Germany, assignor to Vereinigte Baubeschlagfabriken Gretsch & Co. GmbH, Leonberg, Germany

Filed Nov. 2, 1972, Ser. No. 303,032
Claims priority, application Germany, Nov. 3, 1971, P 21 54 639.4
Int. Cl. A63c *9/00*
U.S. Cl. 280—11.35 T **7 Claims**



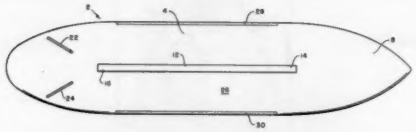
The toe or heel holder of a safety binding is pivotally mounted on a stub shaft, and held in its angular operating position by a spring-loaded, spherical detent guided in a bore of the holder radially relative to the shaft axis toward one of four equiangularly offset notches in the shaft which differ in their depth. The shaft is attached to the top surface of the ski by a square mounting plate and four screws at the corners of the plate so that the detent engages different notches in the shaft, and therefore resists deflection of the holder from its operating position with different force depending on the orientation of the mounting plate on the ski surface.

3,782,744
SNOW SURFBOARD WITH STEPPED STABILIZING SIDES
Dimitrije Milovich, 3 Prospect St., White Plains, N.Y., and Wayne E. Stoveken, 20 E. 46th St., Bayonne, N.J., assignors to said Milovich and Stoveken, part interest to each
Filed Sept. 29, 1972, Ser. No. 293,490
Int. Cl. B62b *13/00*
U.S. Cl. 280—18 **5 Claims**

A snow surfboard particularly for use on hard packed snow comprising a central body section, a nose section having a gradual nose kick, a tail section having a gradual tail kick which is less than said nose kick, said central body, nose, and tail sections being integrally formed, the lateral sides of said board curving upward and outward from the bottom of said board, a plurality of inverted longitudinal stabilizing steps formed in said lateral sides of said board, said steps being defined by risers and horizontal step surfaces and extending substantially the full length of said central body section to said nose and tail sections, said steps forming a plurality of longitudinal biting edges.

The snow surfboard includes a longitudinal stabilizing skeg on the bottom surface of the body and a pair of turning skegs extending from the bottom surface of the tail section.

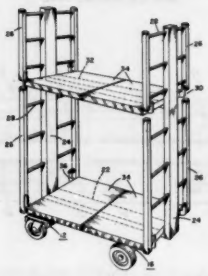
3,782,745
SNOW SURFBOARD
Wayne E. Stoveken, Bayonne, N.J., assignor to Dimitrije Miloch, White Plains, N.Y., a part interest
Filed Sept. 29, 1972, Ser. No. 293,491
Int. Cl. B62b *13/00*
U.S. Cl. 280—18 **4 Claims**



A snow surfboard comprising a central body section, a nose section having a gradual nose kick, a tail section having a gradual tail kick which is less than said nose kick, said central body, nose and tail sections being integrally formed, and a pair of turning skegs fixed to the lower surface of said tail section, said turning skegs being laterally spaced from the longitudinal axis of the surfboard and oriented rearwardly at an angle of from 10° to 50° to said longitudinal axis, said turning skegs extending rrom the bottom surface of said tail section a depth such that the bottom edges thereof are tangent to or just above an extension of the horizontal plane of the lower surface of the central body section.

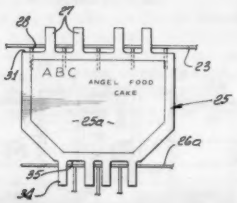
The snow surfboard includes a shock absorbing flexible stabilizing skeg running along the longitudinal axis of the surfboard. The snow surfboard is stable and may be controlled by weight shift techniques similar to those used with water surfboards.

3,782,746
SELF-SUPPORTING NESTING CART
Harold Isaacs, 2583 Fenwick Rd:, University Heights, Ohio
Filed Dec. 30, 1971, Ser. No. 214,263
Int. Cl. B60r *27/00*
U.S. Cl. 280—33.99 H **42 Claims**



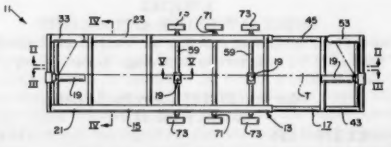
A four wheel cart with a narrow horizontally extending frame connecting the running gear and serving as a support for split shelves hinged to the end frame. A vertical spacer is disposed between the running gear and the horizontal frame to permit nesting of two or more carts when the shelves are in an upright position.

3,782,747
CONNECTION OF ADVERTISING CARDS TO CARTS
Otis T. Hamilton, Jr., 7158 Macapa Dr., Hollywood, Calif.
Filed Mar. 29, 1972, Ser. No. 239,258
Int. Cl. B62b *11/00*
U.S. Cl. 280—33.99 A **4 Claims**



An advertising card, for use on a shopping cart, has integral tabs projecting at the card periphery; the tabs are spaced and sized to be received in the spaces between the rods when folded over cart receptacle horizontal rod structure; and adhesive means is located on the card to adhesively join portions of the folded-over tabs to the card when those portions are pressed toward the main body of the card.

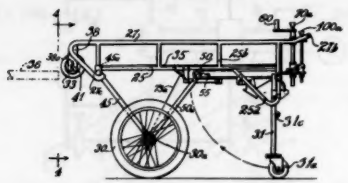
3,782,748
POOL TABLE HANDLING DEVICE
William J. Poland, P.O. Box 1168, Forrest City, Ark.
Filed Mar. 13, 1972, Ser. No. 234,063
Int. Cl. B62d *21/14*
U.S. Cl. 280—35 **10 Claims**



An adjustable frame for handling and transporting various sizes of pool tables. The adjustable frame includes structure

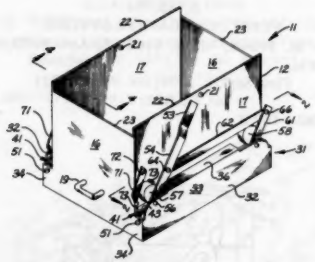
that is telescopically adjustable and securably clampable to a pool table.

3,782,749
JOINT SIDE WHEEL AND REAR LEG CONTROL MEANS FOR HAND-PROPELLED CARTS
Max Wiczer, 6400 W. Gross Pointe, Niles, Ill.
Continuation-in-part of Ser. No. 68,721, Sept. 1, 1970, Pat. No. 3,687,425. This application Dec. 17, 1971, Ser. No. 209,155
Int. Cl. B62b *1/00*
U.S. Cl. 280—36 C **7 Claims**



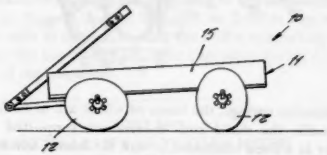
A hand-propelled cart with side wheels and a rear caster leg both foldable under the frame of the cart. The side wheels are foldable by means of a winch crank, and the caster leg by means of a hand lever, these controls both positioned in the rear of the cart. A hand knob in that region is depressible to allow the wheels to drop back to normal position; and a mechanism is provided to automatically release the caster leg in such event to drop back to standing position. The cart also carries a frontal control which, by engaging a vehicular support in front of the cart, causes the caster leg to fold.

3,782,750
BATTERY TRUCK
Dudley C. Peters, 6550 Vicksburg Way, Stockton, Calif.
Filed Sept. 27, 1972, Ser. No. 292,560
Int. Cl. B62d *33/8*
U.S. Cl. 280—43.17 **3 Claims**



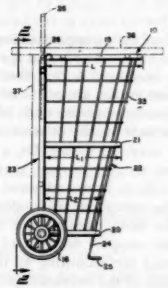
A sturdy box capable of supporting a heavy industrial battery, weighing several hundred pounds, carries on each lateral side an elongated fore and aft housing defining a channel within which is vertically movable an elongated fore and aft carriage. The carriage includes a plurality of rollers engageable with a supporting surface. The rollers are capable of lifting the box by reactive force when the carriage is urged downwardly by a pair of eccentric cams journaled in the housing and engaging the top of the carriage. A hand operated lever actuates the cams and a pawl and ratchet tooth selectively locks the lowered carriage in box-supporting position so that the battery can be moved to the desired location. The battery box is immobilized as the carriage is retracted upwardly and the bottom of the box engages the supporting surface.

3,782,751
OVAL SHAPED WHEELS
Victor E. Williams, 3662 77th Pl., Merrillville, Ind.
Filed Aug. 21, 1972, Ser. No. 282,364
Int. Cl. B62b *1/00*
U.S. Cl. 280—87.01 **2 Claims**



Oval shaped wheels on a vehicle, so that if the vehicle is a wagon or other multi-shaped vehicle, the wheels can be misaligned in rise and fall, either between front and rear wheels or between opposite side wheels so that the vehicle in the former case will pitch as it travels while in the former the vehicle will roll, and wherein if the rise and fall of all wheels are aligned the vehicle body will rise and lower in a constant horizontal plane.

3,782,752
MULTI-PURPOSE CART
Giles Edward Gobetz, 29227 Eddy Rd., Wickliffe, Ohio
Filed Apr. 3, 1972, Ser. No. 240,679
Int. Cl. B62b *1/10*
U.S. Cl. 280—47.19 **13 Claims**

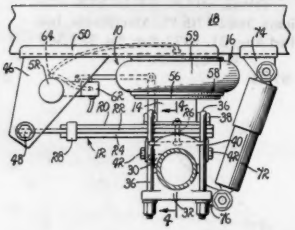


A cart mounted on wheels and having a basic frame on which a variety of attachments may be detachably mounted.

3,782,753
PNEUMATIC SUSPENSION UNIT
Phillip J. Sweet; Buck C. Hamlet, and David L. Sweet, all of Fresno, Calif., assignors to American Carrier Equipment, Fresno, Calif.
Filed June 19, 1972, Ser. No. 263,965
Int. Cl. B60g *1/46*
U.S. Cl. 280—124 F **3 Claims**

A pneumatic suspenion unit adapted to be interposed as a fabricated unit between a load-bearing frame and wheel-supported axle of a highway vehicle. The unit is characterized by

an integrated pair of laterally spaced single convolute air springs to be supported in vertical alignment between a vehicle's axle and its load-bearing frame, and a pair of laterally



cantilevered springs, the bases of which are to be fixed to the axle while the distal ends thereof are supported through a hanger in a fixed relationship with the frame, whereby brake-induced rotation of the axle, relative to the frame, is impeded.

3,782,754

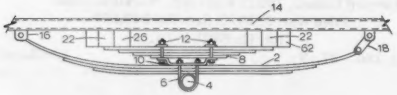
VEHICLE OVERLOAD SPRING APPARATUS

Kenneth W. Sleichter, 1108 E. 17th St., Ottawa, Kans.

Filed Mar. 9, 1972, Ser. No. 229,209

Int. Cl. B60g *11/02*

U.S. Cl. 280—124 R **9 Claims**



A vehicle overload spring apparatus for a vehicle having the usual spring is provided. An overload spring is mounted to the vehicle unsprung member. A first first support means and second first support means are provided for mounting to the vehicle frame adjacent opposite ends of the overload spring for selectively and individually or simultaneously engaging or not engaging the overload spring. Or, a first second support means and second second support means are provided for mounting to the vehicle frame adjacent opposite ends of the overload spring for selectively and individually or simultaneously engaging or not engaging the overload spring. Or, further, a first first support means and first second support means are provided for mounting to the vehicle frame adjacent opposite ends of the overload spring for selectively and individually or simultaneously engaging or not engaging the overload spring. The first support means has a bracket means mounted to the vehicle frame. A first support is pivotally and laterally slidably mounted to the bracket means for engaging the overload spring when in the spring engaging down position. A first stop, second stop, first holding member, and retaining hook are provided for snugly holding the first support in the spring engaging down or up position. The second support means has a second rod mounted to the frame. A second support is pivotally and laterally slidably mounted on the rod for engaging the overload spring when in the spring engaging down position. A biasing means is provided for urging the second support against the frame. A third stop, fourth stop, and second holding member are mounted to the frame for holding the second support means in the spring engaging down or up position.

3,782,755

HYDRAULIC LEVELLING APPARATUS FOR AUTOMOTIVE VEHICLES AND SHUT-OFF VALVE FOR THE SAME

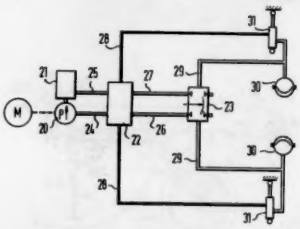
Paul Spichala, Schweinfurt am Main, Germany, assignor to Fichtel & Sachs AG, Schweinfurt am Main, Germany

Filed Mar. 7, 1972, Ser. No. 232,570

Claims priority, application Germany, Mar. 20, 1971, P 21 13 596.6

Int. Cl. B60g *13/06*

U.S. Cl. 280—124 F **3 Claims**



An automotive shut-off valve arranged between the control valve for hydraulic suspension elements of a vehicle and an engine-driven hydraulic pump prevents leakage of oil from the suspension elements to the sump when the engine is not operated although oil may leak through the valve controlling oil flow toward and away from the suspension elements in response to the relative vertical position of the sprung and unsprung vehicle masses, as is necessary for sensitive response of the control valve to changes in vehicle level. The shut-off valve has two spring-biased valve members of which one opens a passage between the hydraulic pump and the control valve when the pump is operated, and the other one is moved by a mechanical connection to an additional valve member to open a passage between the sump and the control valve. The additional valve member closes a throttled passage connecting the pump discharge to the sump and moves the other valve member against its biasing spring as the pressure of pumped liquid builds up in the shut-off valve, and the additional valve member is shifted back to its starting position by the other spring-biased valve member when the pump is shut down.

3,782,756

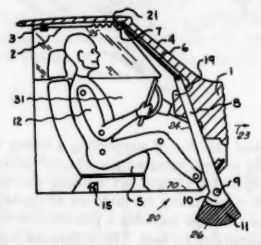
VEHICULAR SAFETY SYSTEM

Alexander M. Brown, 715 S. Bend St., Apt. 309D, Daytona Beach, Fla.

Filed Sept. 2, 1971, Ser. No. 177,331

Int. Cl. B60r *21/02*

U.S. Cl. 280—150 B **7 Claims**



A power source actuating the protective mechanism shielding the occupants of a vehicle involved in collision which is ac-

tivated, without the need for sensors or switching devices, by the inertial forces released due to the sudden deceleration of the vehicle. The protective mechanism includes a flexible cage restraining means positioned by a pivoted lever driven by the power source. Means are included for increasing the speed of the power source so that the protective mechanism is always driven at a proportionately higher speed than that of the occupant in relation to the speed of the decelerating vehicle.

3,782,757

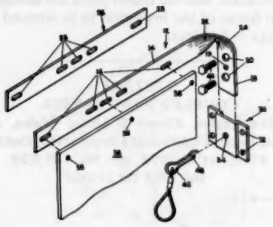
MUD FLAP ASSEMBLY AND BRACKET THEREFOR

Alfred J. Juergens, Muskegon, Mich., assignor to Fleet Engineers, Inc., Muskegon Heights, Mich.

Filed Sept. 19, 1972, Ser. No. 290,400

Int. Cl. B62b *9/16*

U.S. Cl. 280—154.5 **10 Claims**



A mud flap mounting assembly and a mounting bracket therefor wherein the mounting bracket is formed of a narrow elongated plate of elongated cross-section, one end of the plate being twisted through an angle of approximately 90° with respect to the other end about the longitudinal axis of the plate, and also being bent through an angle of approximately 90° with respect to the other end about an axis transverse to the longitudinal axis of the plate. The mud flap can then be mounted directly to one end of the plate and the other end can be mounted directly to a vehicle or can be removably mounted in a socket on the vehicle for ease of removal of the bracket.

3,782,758

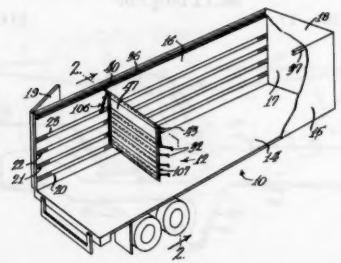
LOAD RESTRAINER

George R. Williamson, III, Richton Park, Ill., assignor to Transport Basics International, Inc., Richton Park, Ill.

Filed Sept. 18, 1972, Ser. No. 289,955

Int. Cl. B60p *7/00*

U.S. Cl. 280—179 R **15 Claims**



A unitary load retainer or restrainer system for a vehicular load carrying container or the like, including a supporting sheet of material suspended from a horizontal rod that rides in tracks so that the restraining system may be moved fore and aft within the container as desired, the supporting sheet material being provided with a plurality of horizontally extending slots that receive load restraining belts having fasteners at either end that are connectable to openings in logistic rails that extend along the interior of the container, the slots in the supporting sheet of material permitting vertical adjustment of the horizontal belts to accommodate for different locations of the logistic rails within different vehicular containers, there being also provided means for loosely holding the belts within the slots so that the belts may not be inadvertently removed from the supporting sheet of material and lost, there being also provided a draw strap having a plurality of slots that receive the belts and a portion which extends up over the horizontal sliding rod at the top of the container with a fastener at the end thereof that may be fixed in any one of the logistic rails as desired to draw the entire supporting sheet and belts to the top of the vehicular container during non-use or loading of the container.

3,782,759

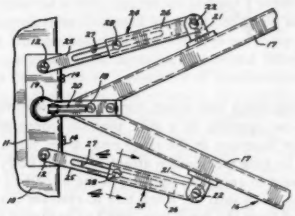
SAFETY ARMS FOR TRAILER HITCH

Gerald E. Thune, Rt. 2, Sacred Heart, Minn.

Filed Oct. 13, 1972, Ser. No. 297,401

Int. Cl. B60d *1/12*

U.S. Cl. 280—457 **2 Claims**



For use with a conventional trailer hitch wherein a forwardly extending tongue on a trailer is pivotally connected on a vertical main hitch axis to a support on the rear of a towing vehicle. A pair of safety links or arms extend fore and aft from each side of the tongue to the support where they are pivoted on each side of the hitch axis. The arms are longitudinally telescopic to extend and retract as the trailer moves about the hitch axis and the arm ends are connected on rigid vertical axes to the tongue and support to provide an effective traveling hitch connection should the main hitch connection be severed.

3,782,760

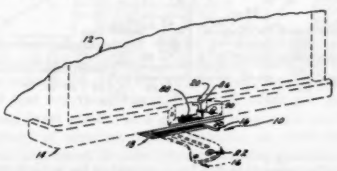
CUSHIONED ADJUSTABLE SWING HITCH FOR VEHICLE

Frederick W. Mann, Waterville, Kans.

Continuation-in-part of Ser. No. 89,858, Nov. 16, 1970, Pat. No. 3,718,347. This application Dec. 6, 1972, Ser. No. 312,566

Int. Cl. B60d *1/00*

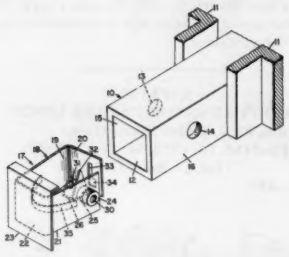
U.S. Cl. 280—467 **7 Claims**



A hitch for vehicles includes a mounting and a hitch pivotal, extendable and translatable relative the mounting with a

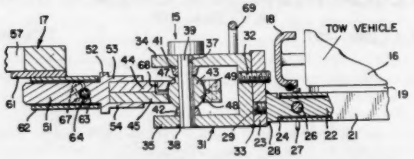
cushion connectable between the hitch and the mounting. A resilient lock secures the cushion of the hitch with the mounting. The hitch mounts on the rear of a vehicle with a hitch that is translatably positionable on the mounting, and is rotatably and extendably positionable therefrom to be coupled with a trailer vehicle, or the like, then retracted to a locked position with the cushion absorbing impact forces.

3,782,761
LOCKING HITCH BOX COVER
Carl J. Cardin, Sr., 425 W. Grace St., Punta Gorda, Fla.
Filed July 23, 1971, Ser. No. 165,634
Int. Cl. B60d *7/00*
U.S. Cl. 280—507 **3 Claims**



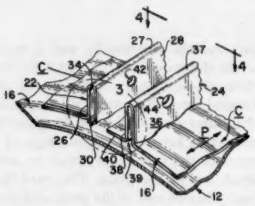
A locking hitch box cover, for a hitch box having an open end and an opening in a side thereof, comprising a body shaped for insertion in the open end of the hitch box, a key operated locking mechanism attached to said body and having a part biased to enter the opening in the hitch box upon insertion of the body into the hitch box to restrain the body from withdrawal from the hitch box, and key actuated means comprising a part of the locking mechanism to restrain retraction of the part from the opening. The body includes first, second, third and fourth walls with the locking mechanism mounted on the fourth wall. The fourth wall is free at one end and biased away from the first wall to hold two walls against opposed faces of the hitch box.

3,782,762
THEFT PROOF VEHICLE TRAILER HITCH CONNECTION
Charles E. Nagy, 3221 Benda Pl., Hollywood, Calif.; John F. Nagy, 785 W. End Ave., New York, N.Y., and Bernard Miller, 11 Fig Tree Rd., Portugese Bend, Calif.
Filed Feb. 29, 1972, Ser. No. 230,333
Int. Cl. B60d *1/06*
U.S. Cl. 280—507 **9 Claims**



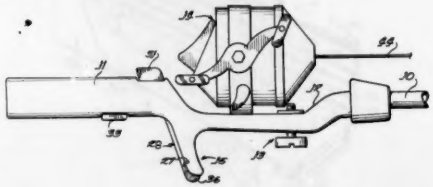
A hitch connection has been provided for vehicle trailers in which the parts can be disconnected from one another by a special shaped hitch pin or the parts can be left connected with one another and detachably removed as a unit from between the trailer and the vehicle and transferred to a location where the unit is inaccessible to unauthorized persons. A universal ball and socket connection is afforded between a bracket and plate socket parts in which a ball is carried upon a hexagonal shank carried on a bracket part and plates have openings adapted to fit over the upper and lower halves of the ball. The ball being held against rotation upon the hexagonal section pin by a complementary opening in the ball and the hexagonal pin being held against rotation between supporting arms on a bracket by hexagonal shaped openings so that all movement between the vehicle and trailer hitch parts is effected upon the ball fixedly carried upon the vehicle and so that the trailer hitch part can tilt up and down and swing free laterally. The vehicle bracket and trailer hitch parts are provided with prongs adapted to be inserted in hollow tubes carried on the vehicle and on the trailer tongue allowing thereby the hitch connection to be releasably removed from the vehicle and trailer as a unit, the same being held in place thereon by removable pins extendable through the tubes and the prongs. The bracket and the trailer parts are designed according to certain forms of the invention to be formed from metal plate stampings or forgings.

3,782,763
COUPLER BAND DEVICE
Henry G. Henrickson, Coeur D'Alene, Idaho, assignor to Kaiser Aluminum & Chemical Corporation, Oakland, Calif.
Filed Oct. 6, 1971, Ser. No. 187,020
Int. Cl. F16l *21/00*
U.S. Cl. 285—419 **5 Claims**



Coupling band device or collar for various types of culvert pipe sections and the like provided with improved flange elements for effecting and maintaining a sealed clamping engagement with the ends of adjoining pipe sections.

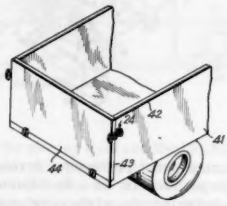
3,782,764
KNOT TYING DEVICE
Charles W. Browning, 4645 E. 57th St., Tulsa, Okla.
Filed Oct. 18, 1971, Ser. No. 190,220
Int. Cl. D03j *3/00*
U.S. Cl. 289—17 **23 Claims**



A knot tying device and method, especially for use in the knotting of monofilament line to fish hooks or lures where the device is generally attached to or is a part of the handle of a

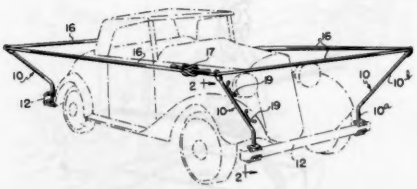
fishing rod and includes a pair of jaws, one of which is movable to provide a pair of winding surfaces that may alternately be diverging or converging at their free ends. The jaws are initially held in a diverging relationship so the fishing line threaded through the eye of the hook can be wound onto the jaws without inadvertently slipping off; the hook being held adjacent the jaws. The free end of the line is positioned between the jaws and held there when the jaws are released, the line is held and the hook is pulled to pull the loops of line off of the jaws and onto the line, and the resulting knot is tightened.

3,782,765
LATCH ASSEMBLY
Rene Wallyn, Claye-Souilly, France, assignor to Societe du Caoutchouc Technique, Claye-Souilly, France
Filed June 13, 1972, Ser. No. 262,305
Int. Cl. E05c *19/10*
U.S. Cl. 292—103 **3 Claims**



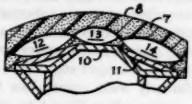
This invention relates to a locking device comprising a latch arm of resilient stretchable material adapted to be pivotally mounted at one end to one element. The latch arm has a handle at its free end and has an enlarged portion positioned inwardly of such handle and formed integrally therewith, the enlarged portion being adapted releasably to engage a retaining portion formed integrally with a retainer bracket secured to another element adjacent the first element, a secure substantially vibration free connection of the two elements being formed when the resilient latch arm is stretched to enable the enlarged portion to engage the retaining portion.

3,782,766
DEMOUNTABLE VEHICLE ROPE BARRIER
William A. Teel, 901 Fifth St., Sandusky, Ohio
Filed Feb. 2, 1972, Ser. No. 222,911
Int. Cl. B60r *19/00, 27/00*; **E04h** *17/00*
U.S. Cl. 293—1 **1 Claim**



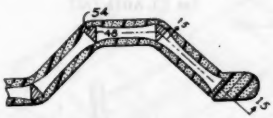
A set of four supports is disclosed for holding a demountable flexible rope barrier in position clamped to the front and rear bumpers of an automobile on display so as to provide a barrier therearound between spectators and the automobile.

3,782,767
RESILIENT, TUBULAR BUMPERS
Alvin Edward Moore, 916 Beach Blvd., Waveland, Miss.
Filed Apr. 5, 1971, Ser. No. 131,024
Int. Cl. B60r *19/08*
U.S. Cl. 293—7 R **30 Claims**



A shock-absorbing bumper means (cushioning device for protecting cars, boats or other vehicles), comprising resilient tubular members of optional variation in cross-sectional shape, having tube-flattened portions, and containing gaseous material that may consist of: air, helium or other gas, preferably under pressure well above that of the atmosphere; cellular foam plastic; or, mixed with gas: a mass of mingled fibers, globules, or other small-diameter elements of small cross-sectional area (e.g., small, flexible, axially curved or straight tubes or rods of resilient rubber or other flexible or crushable material). The cushioning means may comprise separate bumpers at the front and rear of a vehicle, optionally also at the sides or it may extend all around a vehicle with or without integral, tube-flattened junctions between the tubular links. Each bumper element may comprise: only one flat-ended tube; a plurality of separate flat-ended tubes that are not strongly connected or a plurality of band-connected flat-ended tubes (tubular elements or links). The tubular elements are flexible, and because of their wider flattened ends may be long-repeatedly bent without damaging wrinkling, fracture of their material or change in length. Although this material may comprise gas-permeable resilient plastic (preferably enveloped in mesh or other fabric), it preferably is of ductile or resilient metal or of resilient, substantially impermeable, dense plastic. When of metal it may comprise thin copper, lead, aluminum, mild steel, or resilient steel, optionally sheathed in fabric.

3,782,768
TUBULAR, SHOCK-ABSORBING BUMPERS
Alvin Edward Moore, 916 Beach Blvd., Waveland, Miss.
Continuation-in-part of Ser. No. 796,482, Feb. 4, 1969, Pat. No. 3,575,251. This application Apr. 5, 1971, Ser. No. 131,025
Int. Cl. B60r *19/10*
U.S. Cl. 293—71 R **39 Claims**



Shock-absorbing bumper means for cars, boats or other vehicles, comprising resilient, tubular cushioning members of optional variation in cross-sectional shape, containing gaseous material that may be: pressurized air or other gas; gas-cell-containing foam plastic; or a gas-containing mass (optionally pressurized) of separate fibers, globules, or small-diameter elements (very small flexible tubes containing gaseous material or elongated rods of resilient rubber or other flexible or crushable material). The cushioning means may be only at the front and/or rear of the vehicle or may extend around it, with or without integral junctions between the tubular elements.

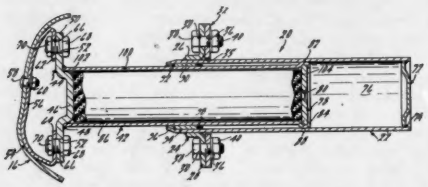
The tubular members may have axes that are: horizontal; vertical or upright; optionally either upright or horizontal; or they may comprise outer horizontal tubular sheaths and inner vertical tubular elements. The tubular-member material may comprise: ductile or resilient metal — e.g., copper, lead, soft iron, resilient steel, with or without mesh or other reinforcing material; or flexible plastic (preferably fabric-reinforced rubber). The tubular members may comprise flat-ended tubular elements that are either separate tubes or tubular links in a bumper band around a portion or all of the vehicle, some of these links optionally comprising a fender above a wheel and a running-board-like side bumper-step. The tubular elements may comprise relatively wide, spring-like bands of resilient steel or the like, acting when flexed to compress fibers or other small filler elements.

3,782,769

ENERGY ABSORBER FOR VEHICLE BUMPERS AND THE LIKE

John H. Fader; Robert W. Hegel, and Burke A. West, all of Monroe, Mich., assignors to Monroe Auto Equipment Company, Monroe, Mich.

Filed June 1, 1971, Ser. No. 148,642
Int. Cl. B60r *19/06*; F16f *3/00*
U.S. Cl. 293—88 **30 Claims**



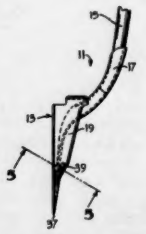
An energy absorber for vehicle bumpers and the like comprising a pair of telescopic tubular housings, with one of the housings containing a high energy spring and the other of the housings containing a fluid reservoir, whereupon impact of the vehicle bumper with an object, fluid within the reservoir is forced through a control device to effect rapid deceleration of the vehicle and compress the high energy spring.

3,782,770

TRENCHING TOOL

Mark W. Lee, 2364 Santa Ana Ave., Costa Mesa, Calif.

Filed Aug. 31, 1972, Ser. No. 285,535
Int. Cl. A01b *1/02*
U.S. Cl. 294—49 **9 Claims**



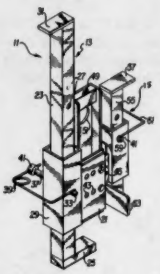
A trenching tool including a blade defining a recess opening in a first direction and a handle attached to the blade. First and second cutting elements are mounted on the blade and extend in a second direction which is opposite to the first direction.

3,782,771

PANEL POSITIONING APPARATUS AND METHOD

Charles H. Moore, 245 Merced St., Salinas, Calif.

Filed Aug. 6, 1971, Ser. No. 169,772
Int. Cl. B66c *1/00*
U.S. Cl. 294—67 R **16 Claims**



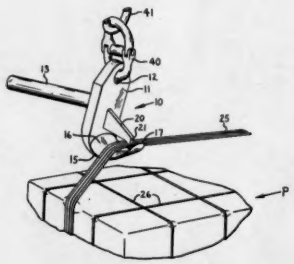
A prefabricated panel positioning device for placing the panel in its proper location on a foundation. A hooking assembly is secured to the edge of the panel and lifting forces are applied thereto to lift the panel from a generally horizontal position to a generally vertical position. The hooking assembly supports the upper frame of the panel and includes a capturing member which selectively prevents disengagement of the panel. An independent dolly is provided which includes a wheeled frame. The dolly supports the lower edge of the panel and horizontally moves it by means of the wheels. The dolly is provided with a jacking device which is utilized to gently lower the panel onto the foundation. The hook and dolly cooperate to position the panel.

3,782,772

LIFTING HOOK FOR BOUND PACKAGES

Albert E. Cranston, III, Gladstone, and Charles B. Lewis, Milwaukie, both of Oreg., assignors to Cranston Machinery Company, Inc., Oak Grove, Oreg.

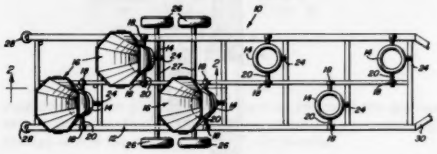
Filed Apr. 12, 1972, Ser. No. 243,289
Int. Cl. B66c *1/14*
U.S. Cl. 294—82 R **9 Claims**



This is an eye hook having a handle on the back side of the shank for the manual engagement and disengagement of the point of the hook under a tensioned binding extending across

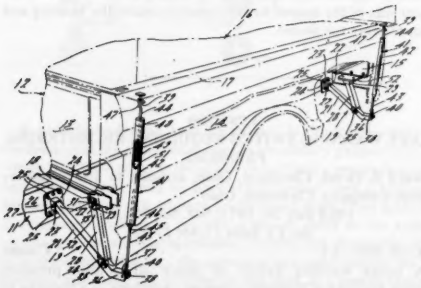
the top of a bound package. The lifting portion of the hook presents a broad and curved lifting surface to support the binding without producing a sharp bend in the binding. The lifting surface is hardened and polished to avoid damage to the binding. A nose projects from the shank into close proximity with the point of the hook overhanging the binding and preventing accidental disengagement of the binding from the hook when lifting tension is relaxed.

3,782,773
REUSABLE TREE CARRIER
Jack D. Mason, 2170 Rosier Rd., Augusta, Ga.
Filed Apr. 21, 1972, Ser. No. 246,249
Int. Cl. B60p *3/00*
U.S. Cl. 296—3 **17 Claims**



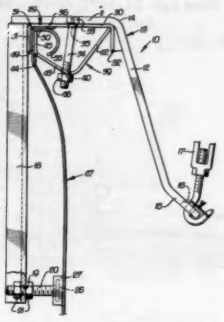
An apparatus for moving trees and the like has a frame provided with wheels and a plurality of annular members of collars pivotally mounted thereon. The collars are mounted on the frame in adjacent parallel rows, the members of one row alternatingly spaced with the members of the other row. A carrier device in the form of a right octagonal cone holds the root-ball of a tree and the like, and is selectively arrangeable in a collar. The carrier device is formed from a plurality of sections selectively connected together as by pins received in holes provided on the sections. Each section has a surface in the shape of an isosceles triangle, with each equal leg thereof having a portion extending therefrom at an acute angle to the plane of the isosceles triangle and shaped as a right triangle.

3,782,774
CAMPER TIE-DOWN SYSTEM
James S. Sturek, 741 E. Grand River, Fowlerville, Mich.
Filed Dec. 14, 1972, Ser. No. 315,255
Int. Cl. B60p *7/16*
U.S. Cl. 296—23 MC **5 Claims**



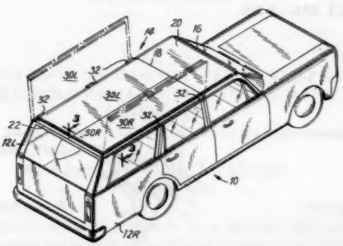
A camper tie-down system utilizing a two strut support system with pinned joints designed to withstand the loads created by pick-up campers. The system does not rely on the outer panel or stake pocket of the pick-up body for attachment or support, but rather attaches to the chassis frame and pick-up box underbody forming a rigid attachment at the vehicle. The system offers compliance and pre-load adjustment by way of a rod assembly.

3,782,775
CAMPER TIE-DOWN
Raywood C. Weiler, and Gene H. Albers, both of 18738 5th St., Fontana, Calif.
Filed July 17, 1972, Ser. No. 272,117
Int. Cl. B60p *3/32*
U.S. Cl. 296—23 MC **7 Claims**



A tie-down device for campers carried in pick-up trucks in which the top edge portions of the side walls of the truck bed are bent outwardly from said walls and then downwardly in various configurations, the tie-down device having a lip clamp disposed outside said truck side wall and being adaptable to the various conformations of the out-turned lips formed on said walls. An inner leg is provided on the device which provides a relatively long-radius bearing against the inner face of the truck side wall while an outer leg on the device provides an anchor boom for attaching a turnbuckle for tieing the camper down to the truck.

3,782,776
CONVERTIBLE ROOF FOR A STATION WAGON
Louis Ormont, 115 Central Park West, New York, N.Y.
Filed Nov. 1, 1971, Ser. No. 194,287
Int. Cl. B60j *7/10*
U.S. Cl. 296—137 B **7 Claims**



A convertible roof for a station wagon having a pair of roof members oriented along the length of the wagon. Each of said members is pivotally mounted along one of their sides to opposite side walls of the wagon. Seal means are provided along the mating edges of each of said members for holding them together in a water-tight fit. The seal means in one embodi-

ment include tongues along their common edge which fit together in overlaping relationship. Brace means are provided for supporting the roof members when they are pivoted to an open position.

3,782,777

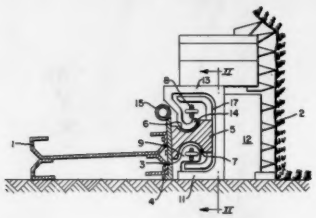
APPARATUS SUPPORTED BY A LONGWALL CONVEYOR FRAME FOR HAULING COAL MINING EQUIPMENT

Karl-Heinz Hafer, Bochum; Walter Pelka, Gelsenkirchen; Reimund Karkutt, and Pal Frenyo, both of Bochum, all of Germany, assignors to Gebr. Eickhoff, Maschinenfabrik Und Eisengiesserei m.b.H., Bochum, Germany

Filed Apr. 24, 1972, Ser. No. 246,632

Int. Cl. E21c *27/35*

U.S. Cl. 299—34 **6 Claims**



Connected to a side of a longwall conveyor in a coal mine is one side of an I-beam type guide bar that extends lengthwise of the conveyor and is provided with upper and lower longitudinal guide channels containing the upper and lower lengths of an endless drag chain. Retaining plate means connected to the opposite side of the bar extend above and below it and also at least part way across the top of the bar but only part way across its bottom, whereby to leave space for passage of an arm connecting a guide block attached to the chain in the lower guide channel to mining equipment between the conveyor and a coal mine longwall.

3,782,778

BICYCLE WHEEL

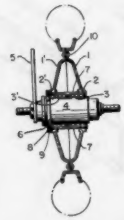
Yoshiaki Tomozawa, Osaka, Japan, assignor to Nankai Tekko Co., Ltd., Osaka, Japan

Filed Mar. 10, 1972, Ser. No. 233,498

Claims priority, application Japan, Mar. 11, 1971, 46/16344

Int. Cl. B60b *19/00*

U.S. Cl. 301—9 DN **5 Claims**



An improved bicycle wheel with isometrical disc wheels linked together with bosses at the bases fitted to a coaster hub shell with cylindrical bodies adjacent to the waster hub shell, a flange on the shell jointed to one boss with bolts extending through the jointed shell flange and boss and an opposite boss.

3,782,779

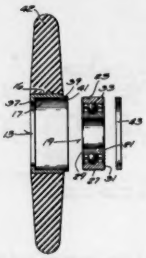
WHEEL ASSEMBLY AND METHOD OF MANUFACTURE

Douglas A. Britnell, Peterborough, Ontario, Canada, assignor to Outboard Marine Corporation, Waukegan, Ill.

Filed Apr. 6, 1972, Ser. No. 241,589

Int. Cl. B60b *5/02*

U.S. Cl. 301—63 PW **5 Claims**



Disclosed herein is a wheel assembly including a flange portion extending integrally from one end of a sleeve and radially inwardly of the outer periphery of a bearing in the sleeve so as to prevent axial movement of the bearing outwardly of the sleeve from the one end thereof, together with a deformed portion extending integrally from the other end of the sleeve and radially inwardly of the outer periphery of a washer or spacer located in the sleeve in adjacent relation to the bearing so as to prevent axial movement of the washer and of the bearing outwardly of the sleeve from the other end thereof.

Also disclosed herein is a method of manufacturing a wheel assembly comprising the steps of forming a bearing sleeve with an outer surface, with a radially inwardly extending flange portion at one end, and with a projecting deformable portion at the other end, bonding to the outer surface of the sleeve a rubber-like wheel, inserting a bearing into the sleeve through the projecting portion and into adjacent relation to the flange portion, subsequently inserting an annular spacer into the sleeve through the projecting portion and into adjacent relation to the bearing, and then deforming the projecting portion inwardly into at least partially overlying relation to the adjacent side of the spacer to permanently retain the bearing and spacer within the sleeve.

3,782,780

BRAKE WARNING SWITCH REQUIRING RECENTERING PRESSURE

Edward S. Orzel, Cleveland, Ohio, assignor to The Weatherhead Company, Cleveland, Ohio

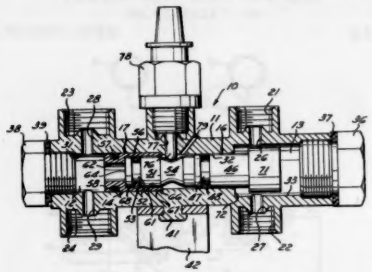
Filed July 26, 1971, Ser. No. 166,082

Int. Cl. B60t *15/46, 17/22*

U.S. Cl. 303—6 C **7 Claims**

A brake warning switch or other differential pressure sensing device has opposed pressure chambers in a housing to be connected to the fluid circuits of a dual brake system and includes a pressure responsive piston assembly shiftable from a centered position in the housing to generate a warning signal upon an abnormal pressure imbalance in the chambers. The piston assembly is arranged to automatically recenter itself when pressures are reestablished in the chambers and includes

a pair of coaxial pistons of differing areas and associated ring seals at one chamber, at least, arranged to permit the differential area of the pistons, which determines the relative



magnitude of the pressures necessary to recenter the pistons, to be selected so that the recentering pressure required is high enough to test the integrity of the fluid circuits.

3,782,781

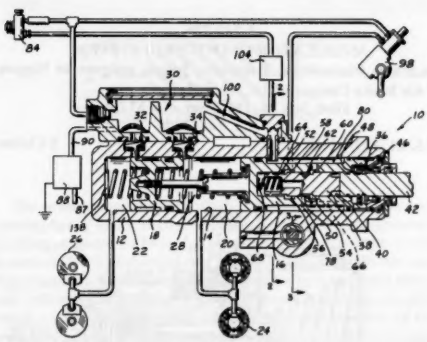
SINGLE FLUID BOOSTER AND SYSTEM

Richard L. Lewis, South Bend, Ind., assignor to The Bendix Corporation, South Bend, Ind.

Filed June 29, 1972, Ser. No. 267,296

Int. Cl. B60t *13/16, 13/00;* **B62d** *5/06*

U.S. Cl. 303—9 **9 Claims**



A vehicle hydraulic braking system is disclosed which includes a primary pressure source, a secondary pressure source which is actuated upon failure of the primary pressure source and which is operated by an electric motor, and a hydraulic brake booster which utilizes pressurized fluid from either of the pressure sources to provide a power assist to the vehicle operator when a brake application is effected. Normally, fluid is communicated from the primary pressure source to the booster, and from the booster to the vehicle's power steering gear to operate the latter. However, upon failure of the primary pressure source and subsequent actuation of the secondary pressure source, a valve which is responsive to actuation of the secondary pressure source diverts fluid from the power steering gear to the system reservoir, thereby conserving the entire fluid output of the secondary pressure source for operation of the brake booster alone.

3,782,782

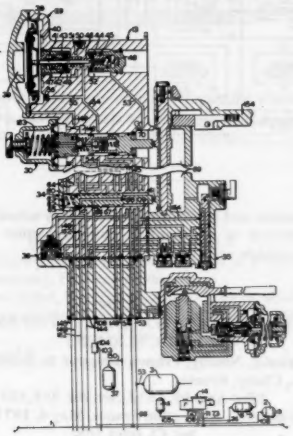
COMBINED OVERSPEED AND SAFETY INTERLOCK FOR VEHICLE CONTROL

Donald Brown, Monroeville, Pa., assignor to Westinghouse Air Brake Company, Wilmerding, Pa.

Filed July 11, 1972, Ser. No. 270,575

Int. Cl. B60t *7/12*

U.S. Cl. 303—19 **13 Claims**



This invention relates to fluidically operable vehicle overspeed and safety control apparatus which requires periodic acknowledging operations by the vehicle operator to forestall a penalty brake application which would be automatically effected should the operator fail to reduce the speed of the vehicle to the maximum allowable speed or perform the required acknowledging operation within a certain time subsequent to the sounding of an alarm signal or whistle. This apparatus requires that the operator successively, within a chosen time interval following one and then the other of two successive alarms, manually close and thereafter open a sensing or vent port from a back pressure switch abutment-operated logic valve device to prevent the occurrence of a brake application which would automatically occur should he fail to close and thereafter open the vent port in the prescribed timed sequence, or should he become incapacitated.

3,782,783

PROGRAMMED OSCILLATOR CIRCUIT AND FIXED THRESHOLD VARIABLE DUTY CYCLE PULSE GENERATOR

James J. Jones, Plano, Tex., assignor to Texas Instruments Incorporated, Dallas, Tex.

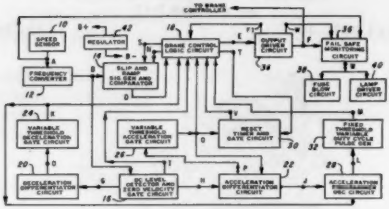
Filed July 27, 1972, Ser. No. 275,663

Int. Cl. B60t *8/12*

U.S. Cl. 303—21 P **10 Claims**

Disclosed is a signal generator in a vehicle skid control braking system for selectively actuating a brake control means in a repetitious or pulsing mode which selectively controls the engagement and disengagement of the braking system of a vehicle in accordance with selected braking conditions and velocity conditions of the wheels of the vehicle. The signal generator comprises a programmable oscillator circuit having a programmable rate of oscillation responsive to a first input signal representing acceleration conditions of the wheels, and a pulse generator responsive to the programmable oscillator

circuit for selectively generating an oscillatory output signal comprising a series of pulses. The oscillatory output signal exhibits a programmable duty cycle responsive to the acceleration condition and is effective to selectively actuate the brake control means in a repetitive pulsing manner to thereby decrease vehicle velocity.

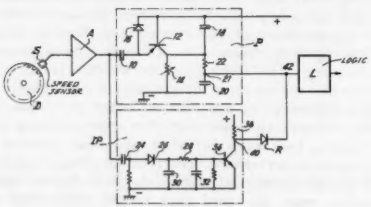


3,782,784

VOLTAGE CONVERTER APPLYING AN ANTISKID LOGIC ELEMENT

Guy Marouby, Neuilly, France, assignor to Societe Anonyme D.B.A., Clichy, France

Filed Apr. 19, 1972, Ser. No. 245,333
Claims priority, application France, May 4, 1971, 7115961
Int. Cl. B60t *8/00*
U.S. Cl. 303—21 R **4 Claims**



A voltage converter set designed to feed an antiskid logic element and to modify the wheel speed sensor signals.

The converter set includes a proportional converter and an inversely proportional converter, connected through a diode, so that the output voltage of the converter set is higher for the low wheel speeds. The invention also provides the combination of several converter sets with a single antiskid logic element in a circuit of the exclusive "OR" or "SELECT LOW" type.

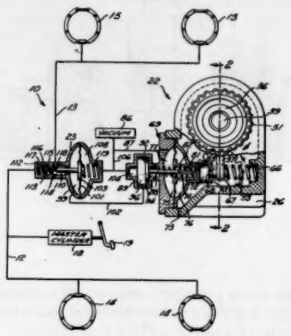
3,782,785

BRAKE ANTI-SKID SYSTEM

Tadeusz Budzich, Moreland Hills, Ohio, assignor to The Weatherhead Company, Cleveland, Ohio

Filed June 5, 1972, Ser. No. 259,434
Int. Cl. B60t *8/12*
U.S. Cl. 303—21 F **6 Claims**

An anti-skid device for mechanically sensing a skid condition of a wheeled vehicle and for automatically regulating braking force to optimize braking effect. The device comprises an enclosed housing in which is mounted linear and rotational inertia bodies arranged to produce balanced forces in a normal braking situation and unbalanced forces in a skid condition. During a skid, a vacuum control circuit having a control port in the housing is operated by the unbalanced force to relieve braking pressure at the controlled wheels to prevent wheel lock-up and consequent loss of braking efficiency. Illustrated modifications include slip clutch means to protect the sensing apparatus from excessive forces under extreme wheel acceleration or deceleration and means to maintain a brake pressure retarding signal beyond a point at which wheel deceleration is returned to proportionality with linear deceleration to allow the controlled wheels to reach synchronous speed to maximize braking effect.

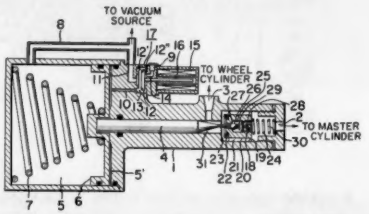


3,782,786

MODULATOR IN ANTI-SKID SYSTEM

Yoshihiro Matsumura, Yokosuka, Japan, assignor to Nippon Air Brake Company Ltd., Kobe, Japan

Filed July 18, 1972, Ser. No. 272,964
Int. Cl. B60t *8/06*
U.S. Cl. 303—21 F **2 Claims**



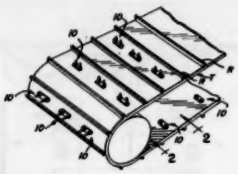
A modulator in an anti-skid system for vehicles in which two valves are disposed in the path of fluid under pressure from a master cylinder to wheel cylinders. In the initial stage of fluid pressure application to the wheel cylinders, the first and second valves are opened and closed respectively, while in the stage of pressure control following the initial stage, the first and second valves are closed and opened respectively, and the second valve member is cyclically closed and opened so that the fluid under pressure can be supplied at controlled rate through an orifice and the second valve.

3,782,787

TRACTION STUD ASSEMBLY FOR SNOWMOBILES

Edward R. Rubel, 68 Landing Rd. South, Rochester, N.Y.; Frank L. Martin, Jr., 2 S. Pittsford Hills Cir., and Robert B. Rubel, 1085 Pittsford Victor Rd., both of Pittsford, N.Y.

Filed Jan. 10, 1972, Ser. No. 216,582
Int. Cl. B62d 55/24
U.S. Cl. 305—35 EB 6 Claims



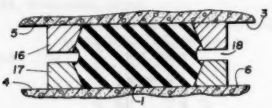
Traction stud assemblies for snowmobile belt include a pair of spaced parallel studs rigidly connected at one end to a common flat support plate. The studs are threaded to serve both as mounting as well as traction elements.

3,782,788

MOVABLE AND TILTABLE BEARING, ESPECIALLY FOR BRIDGES

Waldemar Koester, Forsbach, Germany, and Reinhold Huber, Rorbas, Switzerland, assignors to Kober AG, Glarus, Switzerland

Filed Dec. 21, 1971, Ser. No. 210,439
Claims priority, application Germany, Dec. 24, 1970, P 20 63 745.0; Mar. 26, 1971, P 21 14 662.3
Int. Cl. F16c 27/06
U.S. Cl. 308—3 R 16 Claims



The present movable and tiltable bearing is suitable for supporting heavy loads, such as bridges, by means of an elastically yielding pressure cushion, for example, made of rubber, which is surrounded by retaining ring means. In one embodiment one ring encircles the cushion middle portion to leave gaps above and below the ring. In another embodiment two rings are provided, one inside an annular cushion, the other outside of the annular cushion. Two rings are also used to surround a top and bottom region of a cushion whereby to leave a gap between these rings to permit the tilting movement.

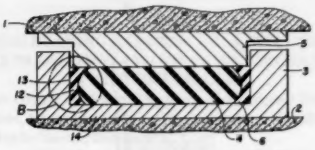
3,782,789

TILTABLE BEARING, ESPECIALLY FOR BRIDGES

Waldemar Koester, Forsbach, Germany, and Reinhold Huber, Rorbas, Switzerland, assignors to Kober AG, Glarus, Switzerland

Filed Dec. 21, 1971, Ser. No. 210,493
Claims priority, application Germany, Dec. 24, 1970, P 20 63 746.1; Mar. 25, 1971, P 21 14 391.9
Int. Cl. F16c 27/06
U.S. Cl. 308—3 R 7 Claims

The present tiltable bearing for heavy structures such as bridges has a load supporting piston which extends into a space confining pot into which is inserted a yielding pressure material, such as a rubber cushion, on which the piston rests. For preventing the escape of the cushion material through the gap between the outer piston walls and the inner walls of the



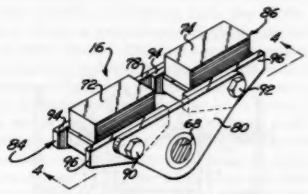
pot, there is provided a sealing body of material which is more rigid than the cushion material. The sealing body faces said gap and forms an integral structure with the gap.

3,782,790

BOOM SLIDER ASSEMBLY

Frank J. Benkowski, Bedford, Ohio, assignor to The Warner & Swasey Company, Cleveland, Ohio

Continuation of Ser. No. 29,408, April 17, 1970, abandoned. This application Apr. 3, 1972, Ser. No. 240,759
Int. Cl. F16c 17/00
U.S. Cl. 308—3 R 11 Claims



An improved boom includes a slider assembly for use in supporting telescoping sections of the boom for movement relative to each other. An articulated slider assembly embodying the invention includes a rocker member which is pivotally mounted on one section of the boom. A pair of slider block assemblies are pivotally mounted on the rocker member and slidably engage a supported section of the boom at spaced apart locations. Deflection of the supported boom section is compensated for by pivotal movement of the slider block assemblies relative to each other. A spring type slider assembly forms another embodiment of the invention and has a flexural rigidity such that the deflection of the spring type slider assembly matches the deflection of a supported section of the boom under the influence of an operating load to provide for the transmittal of a uniform bearing load between the supported boom section and slider assembly.

3,782,791

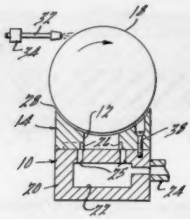
VORTEX DIFFUSER FLUID BEARING DEVICE

John W. Neumann, Birmingham, Mich., and Harry A. Mackie, Raleigh, N.C., assignors to The Udylite Corporation

Filed Mar. 17, 1971, Ser. No. 125,251
Int. Cl. F16c 17/00
U.S. Cl. 308—9 16 Claims

A fluid bearing load supporting system having unidirectional and omnidirectional capabilities which embodies means for forming one or a plurality of fluid vortices

for separating a body from a supporting surface by an intervening cushion of fluid, providing therewith an extremely low



coefficient of friction that facilitates a conveyance of the body for the purposes of transportation, processing, treatment and the like.

3,782,792

CYLINDER-PISTON INTERNAL COMBUSTION ENGINE AND BEARING CONSTRUCTION THEREFOR

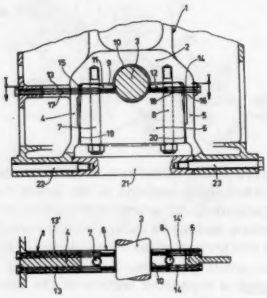
Ernst Pfleiderer, Konigsbrunn, Germany, assignor to Maschinenfabrik Augsburg-Nurnberg A.G. (M.A.N.), Augsburg, Germany

Filed June 15, 1972, Ser. No. 263,018

Claims priority, application Germany, July 22, 1971, P 21 36 631.4

Int. Cl. F16c *9/02*

U.S. Cl. 308—23 **9 Claims**



To provide a hanging, separable bearing on a vertically installed internal combustion engine, a bearing cover is secured from the bottom to the machine part, and carrying a half-cylindrical bearing portion. To prevent distortion of the bearing lining upon longitudinally twisting loading, transverse screws clamp the lower bearing half shell to the machine frame, located close to the separating gap between the lower bearing half shell and the machine portion, to additionally clamp the lower half bearing shell to the machine.

3,782,793

BEARING CONSTRUCTION

Karl-Helmut Sinner, Dortmund-Hochsten, Germany, assignor to Hoesch Werke Aktiengesellschaft, Dortmund, Germany

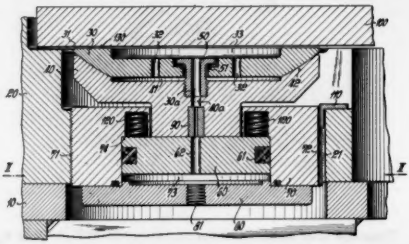
Filed Jan. 24, 1973, Ser. No. 326,297

Claims priority, application France, Jan. 25, 1972, 7222033814

Int. Cl. F16c *17/06*

U.S. Cl. 308—160 **7 Claims**

A support ring is located beneath a bearing ring a major surface of which faces the support ring. The support ring is provided with one or more circumferentially spaced holes each accommodating a hydrostatic support unit for the bearing. Each support unit has a cupped element an open side of which faces the major surface and a closed side of which faces away from the major surface and is bounded by a part-spherical circular face. Beneath the cupped element is a support element a contact face of which is in mating engagement with the circular face. A cylinder is threaded into one of the holes which is



tapped and has a first and a second open end which respectively face towards and away from the support element. The second open end has a flange extending thereacross. A piston is slidable in the cylinder and contacts the support element through the first open end, and communicating oil passages are formed in the flange, the piston, the support element and the cupped element in communication with the open side of the latter.

3,782,794

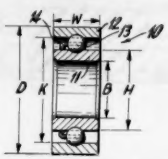
ANTIFRICTION BEARING

William J. Chmura, Southington, and Kenneth A. Catlin, Berlin, both of Conn., assignors to Textron Inc., Providence, R.I.

Filed Dec. 8, 1972, Ser. No. 313,561

Int. Cl. F16c *33/64, 33/66*

U.S. Cl. 308—193 **19 Claims**



Low-cost antifriction bearing rings are disclosed made by the powder metal compaction and sintering of ring blanks followed by densification of the raceway by mechanical working, such as by roll-forming, the bearing rings so produced being characterized by increased rolling contact fatigue life, increased static load capacity and decreased bearing noise as compared to powder metal rings made by compaction and sintering but in which the raceways are produced by machining. By preferably maintaining a region of porosity outside the densified area adjacent the raceway, the rings can be made to exhibit compliancy and thus further increase the fatigue life thereof.

3,782,795

TAPERED ROLLER BEARING

John Cecil Richey, Canton; Ralph E. McKelvey, Louisville; Robert F. Cornish, North Canton, and Harry L. Noll, Canton, all of Ohio, assignors to The Timken Company, Canton, Ohio

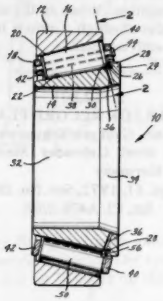
Filed Apr. 6, 1972, Ser. No. 241,534

Int. Cl. F16c *33/00*

U.S. Cl. 308—214 **11 Claims**

A tapered roller bearing has a pin-type cage for maintaining the proper circumferential spacing between the tapered rol-

lers and in the spaces between the rollers it has cage inserts formed from a composite material containing a dry lubricant. In addition, the cone of the bearing has an insert on the thrust rib thereof, and that insert is likewise formed from a composite material containing a dry lubricant. Should the bearings normal supply of lubricant be depleted, the composite material will give up its dry lubricant and for a limited period of time will provide adequate lubrication for critical bearing surfaces. The cone further has outwardly directed oil holes leading to the juncture of the cone raceway and the adjoining abutment face of the thrust rib, and those holes direct lubricating oil to the abutment face as the cone rotates, particularly during high speed operation when the centrifugal force is large.



3,782,796

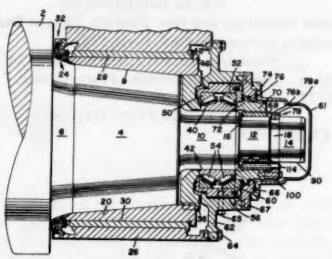
RETAINING MEANS FOR A BEARING ASSEMBLY

Samuel S. Rickley, West Boylston, and Harry Boghosian, Worcester, both of Mass., assignors to Morgan Construction Company, Worcester, Mass.

Filed Dec. 18, 1972, Ser. No. 315,839

Int. Cl. F16c *19/14*

U.S. Cl. 308—234 **7 Claims**



For use with a rotatable element having one section journalled for rotation in a bearing assembly and having another section protruding axially beyond the said one section, an arrangement for retaining the bearing assembly on the said one section including a threaded ring axially movable on and held by means of a key against rotation relative to the said other section, a stop member removably mounted on the said other section for limiting movement of the threaded ring away from the bearing assembly; a nut member threaded on the ring and rotatable to a position contacting the bearing assembly to thus seat the bearing assembly and thereafter exert a retaining force thereon and a locking member removably attached to the nut member and cooperatively engaged with the key for preventing rotation of the nut relative to the threaded ring once the bearing assembly is properly seated.

3,782,797

SLIDING BEARING PARTICULARLY FOR UNIVERSAL JOINTS IN SHIFTING AND STEERING MECHANISMS OF MOTOR VEHICLES

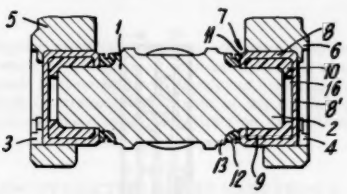
Gunther Lange; Siedlung Gluckauf, and Jurgen Ulderup, all of Haldem, Germany, assignors to Leniforder Metallwaren AG, Lemforde/Hann., Germany

Filed June 11, 1971, Ser. No. 152,082

Claims priority, application Germany, June 9, 1970, P 20 28 176.9; June 24, 1970, P 20 31 183.5

Int. Cl. F16c *33/20, 33/74*

U.S. Cl. 308—238 **6 Claims**



The sliding bearing includes an outer cup-shaped thin metal bearing bush seated in the ends of a fork of the universal joint, and an inner sliding bush, of abrasion and oil resistant plastic composition material, embracing each pin of the universal joint, there being a predetermined clearance between the inner and outer bushes. The inner bush is retained against axial displacement relative to the pin, and is also retained against rotation relative to the pin. In one embodiment of the invention, the outer bearing bush has an in-turned flange engaging an end of the inner bush, and the inner bush has an in-turned end extending over the end of the pin. A packing ring is interposed between the in-turned flange on the outer bush and a collar on the pin. In another embodiment of the invention, the in-turned flange on the outer bush penetrates into the plastic inner bush which, in this embodiment, extends up to engage the collar on the pin. In a third embodiment, the plastic inner bush is formed by pouring around a cylindrical core inserted into the outer bush. The plastic bush, when it sets, shrinks to disengage its outer surface from the inner surface of the outer bush, and has a gripping fit with the pin of the joint. In this embodiment also the outer bush has an in-turned flange at its open end.

3,782,798

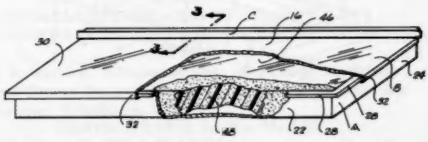
CLOSURE CONSTRUCTION

Robert B. Whorton, III, Spartanburg, S.C., assignor to Beverage-Air Sales Company, Spartanburgh, S.C.

Filed Aug. 1, 1972, Ser. No. 276,952

Int. Cl. A47f *3/00*

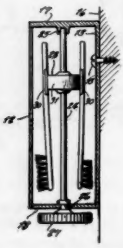
U.S. Cl. 312—138 R **2 Claims**



A slidable planar door for a refrigerated housing and the like having a rectangular opening in an upper wall thereof.

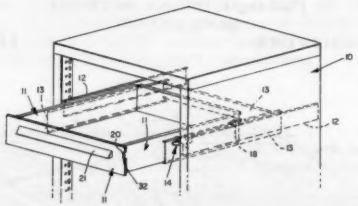
The planar door includes a lower member and an upper member with insulation carried therebetween. The upper member is attached to the lower member adjacent the rear thereof by a U-shaped member so that the upper member can expand to a different degree from the lower member without the door buckling. A thin plastic sheet is carried between the upper member and insulation carried in the door so as to permit the upper member to substantially float when expanding relative to the lower member.

3,782,799
MAGNETIC TOOTHBRUSH-HOLDER
Henning H. Hansen, 1000 Hayes Ave., Racine, Wis.
Filed Aug. 10, 1972, Ser. No. 279,722
Int. Cl. A46b *17/00;* **F16b** *47/00*
U.S. Cl. 312—206 **1 Claim**



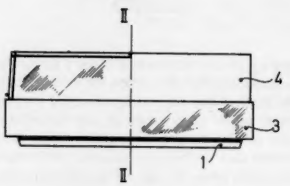
A holder for storage of toothbrushes so to be conveniently handy for use, the device consisting of a case that can be mounted on a wall of a bathroom, the case having a pivotable front door for access to the toothbrushes, a rotatable vertical spindle inside the case supporting a permanent magnet wheel, each of the brushes having a steel block permanently imbedded in a side of the handle so that the magnet wheel will hold to the steel blocks for supporting the toothbrushes, and a lower end of the spindle protruding from the lower end of the device so that it can be manually rotated so to bring a selected one of the toothbrushes to a front side where it can be easily removed for use.

3,782,800
LATCH MECHANISM
John L. Remington, Coplay, and Willard J. Benner, Quakertown, both of Pa., assignors to The Stanley Works, New Britain, Conn.
Filed June 22, 1972, Ser. No. 265,337
Int. Cl. A47b *88/16*
U.S. Cl. 312—333 **11 Claims**



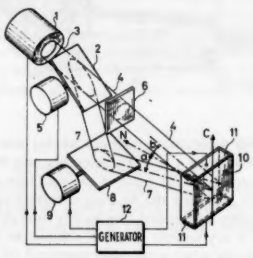
A latching arrangement for a reciprocable drawer or chassis assembly operable to securely hold the individual drawers in the fully open position once opened and in the fully closed position, when closed, until released manually. Latch stops are secured on the front and rear of one side of each drawer itself, each of which cooperates with a single latch member having a locking arm which is pivotally secured to the side of the stationary frame member. Alternate embodiments of the invention are disclosed showing camming surfaces, which cause the latch member locking arm to engage the stops, as being either on the latch stop or on a portion of the latch member itself. A release lever which is used to release the latch arm from either of the stops may be easily reached when the drawer is in either the open or closed position. When in the closed position, the release lever protrudes through a notch in the front of the drawer and is thus readily accessible.

3,782,801
CONSOLE FOR RECORD PLAYERS
Heinrich Zimmermann, Georgen/Schwarzwald, Germany, assignor to Firma Dual Gebruder Steidinger, St. Georgen/Schwarzwald, Germany
Filed Sept. 11, 1972, Ser. No. 288,082
Int. Cl. A47b *8/06*
U.S. Cl. 312—284 **2 Claims**



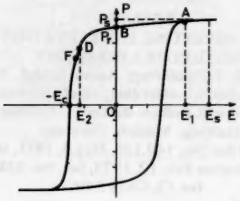
A console for record players, comprising a bottom part and a frame including side walls, a front wall and a rear wall. A cover cap is received by the frame and accessible from the front side. Adjustable means are provided for holding the frame on the bottom part in two selectable positions of different heights relative to the bottom part.

3,782,802
FERRO-ELECTRIC SYSTEM FOR BULK STORAGE OF PHASE HOLOGRAMS
Francois Micheron, and Guy Bismuth, both of Paris, France, assignors to Thomson-CSF, Paris, France
Filed Sept. 13, 1972, Ser. No. 288,670
Claims priority, application France, Sept. 20, 1971, 7133727
Int. Cl. G02b *27/38;* **G11b** *9/02*
U.S. Cl. 350—3.5 **12 Claims**



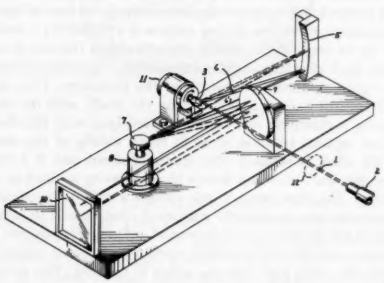
The present invention relates to phase holography and more particularly to ferro-electric systems for bulk storage of phase

holograms. The system in accordance with the invention comprises a photo excitable ferro-electric material having a hysteresis cycle at ambient temperature, wherein a electric field is created for at least partially reversing the remanent



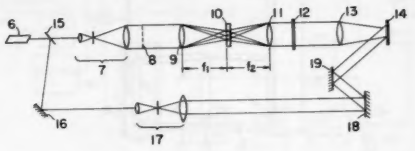
polarisation thereby fixing a fringe pattern photo induced within said ferro-electric material. The system can be used in optical bulk stores and for building up thick holographic lenses.

3,782,803
SIMPLIFIED FLAT MIRROR SCANNER
Willard E. Buck, P.O. Box 671, Lake Havasu City, Ariz.
Filed Oct. 12, 1971, Ser. No. 188,115
Int. Cl. G02b *17/00*
U.S. Cl. 350—7 **5 Claims**



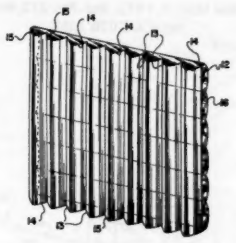
A system is disclosed for translating a collimated beam of light, such as that generated by a laser, into a raster scan on a planar target. The laser beam is directed at a first rotating mirror provided with a plurality of faces from which it is redirected toward a first stationary mirror with the first rotating mirror causing a linear sweep across the concave face of the first stationary mirror. From the first stationary mirror, the laser beam is directed toward a second multiface rotating mirror disposed beyond the focal point of the first stationary mirror. The second rotating mirror imparts a second scan direction to the laser beam which is substantially normal to the first scan direction. From the second rotating mirror, the laser beam is redirected toward a second stationary concave mirror from which it is redirected in a raster scan to a planar target disposed at a distance from the secondary stationary mirror at which the beam is substantially in focus. A line scan embodiment of the invention is achieved by directing the beam from the laser directly onto the second rotating mirror.

3,782,804
HOLOGRAPHY USING MULTIPLE DIFFUSED OBJECT ILLUMINATION BEAMS
Yasunori Kanazawa, and Yoshizumi Eto, both of Hachioji, Japan, assignors to Hitachi, Ltd., Tokyo, Japan
Filed Oct. 18, 1972, Ser. No. 298,568
Claims priority, application Japan, Oct. 18, 1971, 46/81689
Int. Cl. G02b *27/00*
U.S. Cl. 350—3.5 **6 Claims**



A hologram recording apparatus comprises a diffraction grating which serves to convert an object light beam obtained from a single light source into a plurality of beams, and a diffuser which is arranged in the path of the multiple light, whereby an object is illuminated by light from said diffuser.

3,782,805
FRONT PROJECTION SCREEN MADE FROM A TRANSPARENT MATERIAL
John Brown, New Hope, Pa., assignor to Qantix Corporation, Flemington, N.J.
Filed Nov. 30, 1972, Ser. No. 310,882
Int. Cl. G03b *21/60*
U.S. Cl. 350—129 **5 Claims**

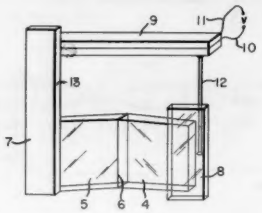


A front projection screen is disclosed which is made from a transparent material. Prism like elements are formed on the back side thereof so that light incident upon the screen from a preferred direction will be totally reflected by the screen while light incident upon the screen from other directions will pass therethrough. Sides of the prism like elements are curved to provide dispersion in the horizontal plane while the front surface of the projection screen has segments of cylindrical columns formed thereon perpendicular to the prism like elements to provide an angular spread in the vertical plane.

3,782,806
BISTABLE OPTICAL SWITCH UTILIZING LEAD PHOSPHATE OR LEAD STRONTIUM PHOSPHATE CRYSTALS
John R. Barkley, Wilmington, Del., and Lothar H. Brixner, West Chester, Pa., assignors to E. I. du Pont de Nemours and Company, Wilmington, Del.
Filed Oct. 27, 1972, Ser. No. 301,539
Int. Cl. G02f *1/24*
U.S. Cl. 350—149 **14 Claims**

Lead phosphate and certain mixed phosphates of lead and strontium are pure ferroelastic materials which can be

switched from one strain state to another by mechanical stress. The crystals are transparent to visible radiation and the strain states are biaxially birefringent, the optic axes of adjacent domains separated by a domain wall lying in different spatial directions. Accordingly, if a suitable polarizer and analyzer is employed to extinguish light passing through one



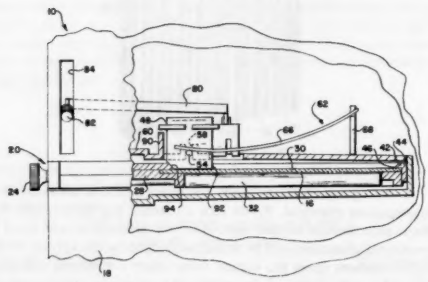
strain state, the strain state to which it can be switched will transmit light. Thus is there provided mechanically actuated optical switch. The optical properties of the domain wall likewise differ from either adjacent domain and in conjunction with spatial filtering (and/or optionally polarization filtering) can be used to provide mechanically actuated line scanners.

3,782,807

LENS GIMBALING AND CARRIAGE RELEASE APPARATUS

Richard H. Bolton, Holcomb, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

Filed Mar. 7, 1972, Ser. No. 232,465
Int. Cl. G02b *7/02*
U.S. Cl. 350—255 **5 Claims**



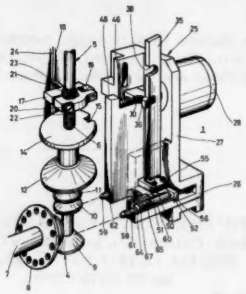
In image projection apparatus for projecting enlarged images from a sheet of microfilm along a projection axis, a carriage mounted for movement in at least one of mutually othogonal directions relative to the projection axis is provided with a transparent reference plate against which a projection lens assembly is spring biased. The lens assembly includes a lens barrel which is gimbally mounted and a projection lens slidably mounted in the barrel. The carriage is provided with a stop at one end which is adapted to engage the lower end of the lens barrel to prevent the carriage from being removed from the image projection apparatus when the carriage is withdrawn a predetermined distance. The apparatus is provided with a lever connected to the lens for focusing the lens by sliding it in the lens barrel. The focusing lever also engages the lens barrel and when it is moved to an extreme position causes the lens barrel to gimbal and disengage from the carriage stop thus releasing the carriage for complete withdrawal from the projection apparatus.

3,782,808

DEVICE FOR ARRESTING THE ELEVATION AIMING MOTION OF A PERISCOPE

Jean-Marie Hohl, Luitpoldring; Anton Schipf, Neukeferloh, and Werner Schmid, Loiderding, all of Germany, assignors to Messerschmitt-Bolkow-Blohm Gesellschaft mit beschrankter, Haftung, Munich, Germany

Continuation of Ser. No. 140,126, May 4, 1971, abandoned.
This application Feb. 12, 1973, Ser. No. 333,363
Int. Cl. G02b *5/08*
U.S. Cl. 350—301 **10 Claims**



The device is used with a periscope, associated with a remote control arrangement, for determining the line of sight. The periscope elevation aiming motion is effected by a shaft, driven by an angle drive, which is preferably a friction drive, with the shaft effecting angular adjustment of a totally reflecting component, such as a mirror, of the periscope. First and second control units are mounted on the shaft, with the first unit being a clamping nut threadedly engaged with the shaft and fixed against rotation so as to move axially of the shaft when the shaft is rotated. The second control unit is a disk fixed to the shaft to rotate therewith and having a notch in its periphery. The first control unit carries a roller. Respective detent means are cooperable with each control unit to arrest motion of the shaft in a predetermined null angular position of the mirror, and the detent means comprise elements cooperable with the roller and with the notch in the disk. The detent means are operated by an electromagnet. Upon operation of the detent means, pins engage in diametrically opposite apertures of a disk carried by a drive shaft of the angle drive so that the angle drive can no longer be operated. Alternatively, the operation of the detent means may be effected manually by a cam and cam follower arrangement having an operating knob which is releasably latched, by a detent, in the null angular position of the mirror.

3,782,809

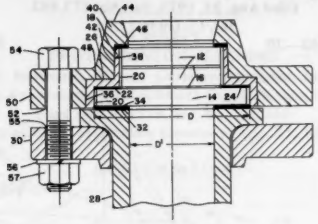
SIGHT GLASS ASSEMBLY

Lester F. Shropshire, South Charleston, W. Va., assignor to Cyclops Industries, Inc., South Charleston, W. Va.

Filed Feb. 23, 1972, Ser. No. 228,496
Int. Cl. G02b *7/00*
U.S. Cl. 350—319 **8 Claims**

An improved sight glass has been devised for an annular lens container featuring a shelf between its two ends. The sight

glass is constructed in such a manner that metal corroding contents of reaction vessels do not contact any metal elements



of the sight glass. The shelf feature of the sight glass construction also enhances the strength and safety of the entire apparatus.

3,782,810

INDIVIDUALLY SELECTIVELY USEABLE ANTI-GLARE GOGGLE GLASSES

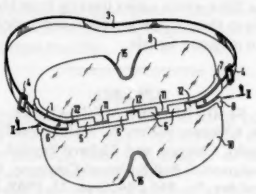
Hannes Marker, Hauptstrasse 51-53, Garmisch-Partenkirchen, Germany

Filed Dec. 15, 1971, Ser. No. 208,204

Claims priority, application Germany, Dec. 18, 1970, G 70 46 891.6

Int. Cl. G02c *9/02*; **A61f** *9/02*

U.S. Cl. 351—47 **5 Claims**



The goggles are particularly intended for use by skiers and comprise a goggle glass holder, which is adapted to bear on the head of the skier. The goggle glass holder carried two selectively usable goggle glasses or goggle glass units, which are so related to each other that one goggle glass or goggle glass unit is disposed in front of the eyes of the wearer and the other is disposed in front of his forehead when the goggles are in position of use.

3,782,811

FILMSTRIP PROJECTOR WITH SYNCHRONIZED SOUND

Frank C. Badalich, Chicago, and Roy H. Watterlohn, Morton Grove, both of Ill., assignors to Bell & Howell Company, Chicago, Ill.

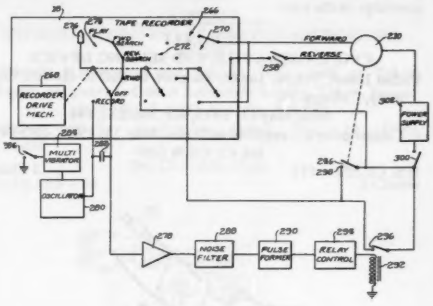
Division of Ser. No. 97,859, Dec. 14, 1970, Pat. No. 3,675,994.

This application Jan. 13, 1972, Ser. No. 221,464

Int. Cl. G03b *31/04*

U.S. Cl. 352—17 **7 Claims**

A control apparatus for a film strip projector provided with synchronized audio accompaniment. A recorder having a control track provides actuation signals for control of the projector motor. In response to a control signal from the recorder control track the projector motor is actuated and maintained



energized through an operational movement corresponding to the advance of one film frame after which it is deactivated in ancicipation of a subsequent control signal.

3,782,812

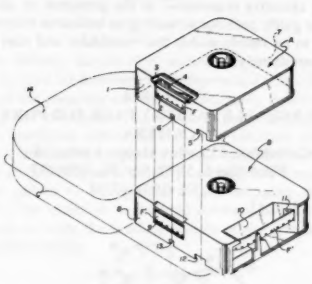
CARTRIDGE POSITIONING APPARATUS

Thomas W. Roller, Webster, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

Filed Feb. 22, 1973, Ser. No. 334,534

Int. Cl. G03b *23/02*

U.S. Cl. 352—72 **11 Claims**



A cartridge positioning apparatus is adapted for use with several web cartridges of the kind wherein cartridge locating structures and web passage openings on respective ones of the cartridges are differently situated with regard to each other. The cartridge positioning apparatus includes a nest for separately receiving these cartridges in a manner such that respective ones of the openings on the cartridges can occupy generally the same web feeding position in the nest, causing respective ones of the locating structures on the cartridges to occupy different positions in the nest. A cartridge retaining member on the apparatus operates to secure a cartridge in the nest. To insure proper placement of a cartridge in the nest, the apparatus includes a locator which cooperates with the locating structure on a cartridge in the nest for verifying that the opening on such cartridge occupies the web feeding position and, in the event that the opening on such cartridge does not occupy the web feeding position, the locator prevents the cartridge retaining member from securing the cartridge in the nest. Optionally, if the several web cartridges are further of the kind provided respectively with web identifying structures, then the cartridge positioning apparatus can further include

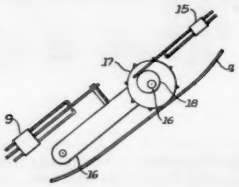
an identifier for verifying the presence of the identifying structure on a cartridge properly placed in the nest and, in the absence of that structure on such cartridge, the identifier prevents the cartridge retaining member from securing the cartridge in the nest.

3,782,813

CINE CAMERA FILM END SENSING DEVICE

Tadao Isono, Tokyo, Japan, assignor to Bell & Howell Company, Chicago, Ill.

Filed May 11, 1972, Ser. No. 252,494
Claims priority, application Japan, May 11, 1971, 46/37490
Int. Cl. G03b *1/60*
U.S. Cl. 352—171 **2 Claims**



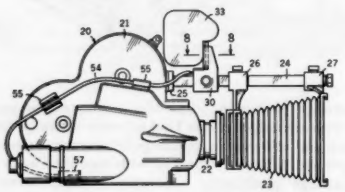
An end of film sensor and indicator device is provided for a motion picture camera having a reversibly drivable film transport mechanism, and accepting film cartridges without a driven take-up and without a film anti-backwind device, the cartridge having film access openings through which film might be passed into a film guide path of the camera upon movement by the transport mechanism and returned to the cartridge, the film guide path having a film condition sensor including circuitry responsive to the presence or absence of film in the guide path for actuating an indicator which may be arranged to be visible within the viewfinder and may be energized intermittently.

3,782,814

RECHARGEABLE BATTERY PACK FOR PORTABLE CAMERA

Louis W. Greenblatt, 12 Ladue Manor, Ladue, Mo.

Filed May 8, 1972, Ser. No. 250,977
Int. Cl. G03b *17/02*
U.S. Cl. 352—242 **5 Claims**



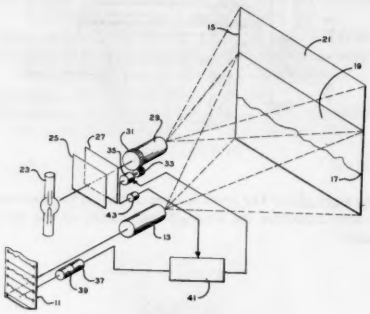
Rechargeable battery pack and mounting arrangement for motion picture cameras comprising a battery pack with an integrally molded plastic casing and slide track with battery terminals molded into the slide track, that track being slideably engageable into a second plastic track element secured to the camera, having plugs connected with wires leading to an external connector for engagement into the camera, the plugs automatically engaging the sockets in the battery pack slide when the battery pack slide is engaged in the second one. The second track may be an intermediate slide constituting a spacer member, and in turn it may have another slide portion that is engageable with a complementary slide member fixed on the camera. A recharger is provided for recharging one or more battery packs at once.

3,782,815

SKY FILL-IN PROJECTOR

Raymond E. Kittredge, Chenango Bridge, N.Y., assignor to The Singer Company, Binghamton, N.Y.

Filed Aug. 23, 1971, Ser. No. 173,842
Int. Cl. G03b *21/26*
U.S. Cl. 353—29 **5 Claims**



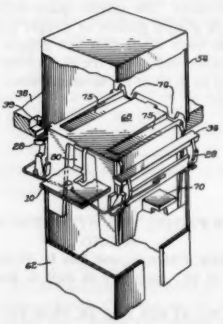
A sky fill-in projector for use with a projected real world scene, such as a motion picture, which has only a small amount of sky recorded on it, in which the sky intensity of the real world scene is sensed and a blue fill-in color of matching intensity obtained by controlling the amount of blue light permitted to pass through a projection lens arranged to project the light on a screen above the real world scene is shown. In a second embodiment color is also sensed by sensing blue and magenta and a filter which varies linearly from blue to magenta and which is in the projection path is controlled in response to the blue and magenta signals.

3,782,816

SLIDE RETURN MECHANISM

Carl Costanza, Chicago; Walter W. Weber, Des Plaines; Frank W. Betlejewski, Chicago, and Richard Frystak, Park Ridge, all of Ill., assignors to Bell & Howell Company, Chicago, Ill.

Division of Ser. No. 860,384, Sept. 23, 1969, Pat. No. 3,659,934. This application July 6, 1971, Ser. No. 160,071
Int. Cl. G03b *23/02*
U.S. Cl. 353—112 **3 Claims**



A slide return mechanism including a reloading platform that returns projected slides to a supply cartridge. A detent is

provided to releasably hold the platform at a position where the slides are in the cartridge. A tab on the cartridge releases the platform when the cartridge is removed from the projector.

3,782,817

PHOTO PRINTING MACHINE

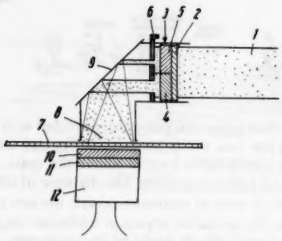
Heinrich Isermann, Siegen, Germany, assignor to Meteor-Siegen Apparatebau Paul Schmeck GmbH, Siegen, Germany

Filed Apr. 6, 1972, Ser. No. 241,565

Claims priority, application Germany, Apr. 23, 1971, P 21 19 871.0

Int. Cl. G03b *21/14*

U.S. Cl. 355—83 **3 Claims**



A photo-printing machine for printing from transparencies onto paper has a photo-sensitive means to measure the light transmitted by a transparency. A plurality of filter elements each with a different spectral transmission characteristic is positioned between the light source and the transparency. Each filter is provided with a diaphragm to control the amount of light transmitted thereby.

3,782,818

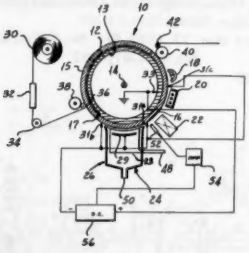
SYSTEM FOR REDUCING BACKGROUND DEVELOPER DEPOSITION IN AN ELECTROSTATIC COPIER

Ian E. Smith, Lockleys, Australia, assignor to Savin Business Machines Corporation, Valhalla, N.Y.

Filed Nov. 17, 1972, Ser. No. 307,572

Int. Cl. G03g *15/10*

U.S. Cl. 355—10 **10 Claims**



In an electrostatic copier, a direct-current-voltage source and associated circuitry for applying to a biasing electrode in a liquid developer tank and to a ground-insulated conductive mirror-return sector of the surface of a rotating photoconductive drum the same potential as exists on background, non-imaged, regions of the charged and exposed photoconductive surface to reduce background deposition of developer. Means are provided for measuring this background potential and for adjusting the voltage on the biasing electrode and mirror-return sector of the drum to match this measured value.

3,782,819

MICROFILM DRIVING DEVICE FOR MICROFICHE CAMERA

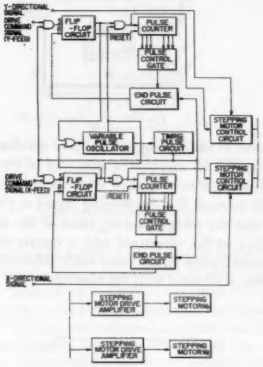
Mitsutoshi Kanayama, and Takako Toda, both of Tokyo, Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Mar. 7, 1973, Ser. No. 338,856

Claims priority, application Japan, Mar. 10, 1972, 47/24499

Int. Cl. G03b *27/44*

U.S. Cl. 355—54 **3 Claims**



A film driving device for microfiche camera employs stepping motors for driving a microfilm and a microfilm carrier. Each of the stepping motors is numerically controlled by a variable pulse oscillator. The variable pulse oscillator comprises an oscillator circuit and a time constant circuit for changing a oscillation frequency of the oscillator circuit. The oscillator circuit adapts to rapidly increase the frequency of the clock pulses to be applied to the stepping motors in response to the variation in the time constant of the time constant circuit to vary the feeding speeds of the microfilm and the microfilm carrier.

3,782,820

COMBINED READING AND ENLARGING APPARATUS FOR MICROFILM

Erwin Kohn, Anzing; Horst Bickl, Pullach; Josef Pfeifer, Unterhaching, and Hans-Joachim Schrecke, Pucheim, all of Germany, assignors to AGFA-Gevaert Aktiengesellschaft, Leverkusen, Germany

Filed Jan. 10, 1972, Ser. No. 216,435

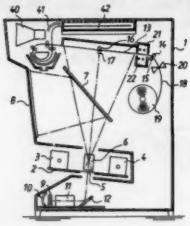
Claims priority, application Germany, Jan. 9, 1971, P 21 00 903.0

Int. Cl. G03b *13/28*

U.S. Cl. 355—45 **12 Claims**

A combined reading and enlarging apparatus for microfilm wherein the screen of the reader is located in the front wall and the enlarger is mounted in the upper portion of the housing. The enlarger employs guide rolls which transport freshly cut sheets of ZnO paper in a horizontal plane wherein the sheets are exposed to light passing through that frame of microfilm whose image is projected onto the screen, and there-upon along a looped path spaced sections of which intersect each other and wherein the freshly exposed sheets travel through a developing liquid confined in a tank and filling a gradually widening passage between the concave in-

ternal surface of the tank and the convex surface of a developing electrode. The length of that portion of the path which extends from and back to the point of intersection between the spaced sections of the path exceeds the length of a sheet, and the sheets which leave the tank to travel toward the point of intersection move upwardly to facilitate the removal of developing liquid. Each freshly exposed, developed and dried



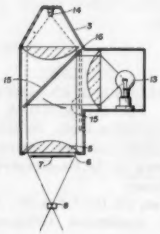
sheet is caused to slide along an inclined discharging surface to emerge through an outlet in a side wall of the housing. An intermediate section of the path wherein the sheets advance during travel through the developing liquid is configurated in such a way that the image-bearing sides of the sheets face the convex surface of the electrode and, a nozzle of the enlarger discharges developing liquid onto such sides of the sheets to keep them out of contact with the electrode.

3,782,821

PHOTOGRAPHIC ENLARGER

Alfred E. F. Bosman, Heidelberg, T.V.L., South Africa, assignor to The Raymond Lee Organization, Inc., New York, N.Y.

Filed Nov. 10, 1972, Ser. No. 305,526
Int. Cl. G03b 27/54
U.S. Cl. 355—70 **5 Claims**



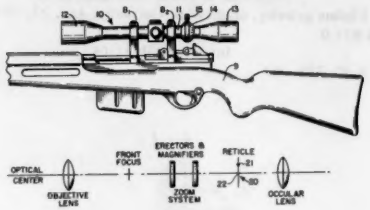
A photographic enlarger comprises a housing having a light outlet opening and a condenser at such opening adapted to illuminate a negative to be enlarged. A first light source mounted in the housing is a full-sized lamp. A second light source mounted in the housing is a flash-light. A shutter is pivotally mounted in the housing and has one position in which it blocks light from the second light source and directs light from the first light source through the condenser, and another position in which it blocks light from the first light source and directs light from the second light source through the condenser.

3,782,822

METHOD AND APPARATUS FOR AUTOMATIC RANGING WITH VARIABLE POWER TELESCOPIC GUN SIGHT

Mack L. Spence, 716 Dawes Dr., Denham Springs, La.

Filed Nov. 8, 1971, Ser. No. 196,698
Int. Cl. G01c 3/20
U.S. Cl. 356—21 **7 Claims**



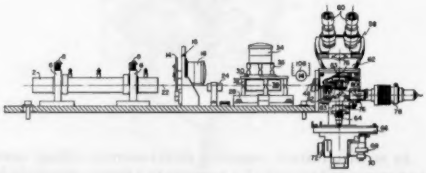
In a variable power telescope gun sight, provided with stadia and aim point at the rear focus between the ocular lens and zoom system, an aim point is located above the optic center and correlated with bullet trajectory. The distance of off set of the aim point is such that, at minimum power, the aim point is zeroed relative to the stadia for impact at minimum range, this usually being the point blank range of the projectile, and at some higher power relative to an increase in range the projectile is again zeroed, in that the projectile impact and the aim point coincide. The novel telescopic sight and method of its use are based on the observations that (1) between approximately ⅓ and ⅝ maximum range and maximum range the trajectory of a high velocity bullet is substantially linear, (2) that as magnification is increased the aim point will appear to move downwardly toward optic center and (3) that the low power and some higher power of the telescope, respectively, can be correlated with a zero at the minimum and maximum range, respectively, with reference to the stadia. Correlated in such manner, changes in magnification, in the optic sense automatically set the aim point for firing without any necessity of the observer knowing the actual distance to the target.

3,782,823

LASER MICROPROBE

Joseph W. Kantorski, Southbridge, Mass.; Donald A. Smith; David A. La Marre, both of Woodstock, Conn.; Donald H. Hansen, Williamsville, N.Y., and Milton R. Thorburn, Southbridge, Mass., assignors to American Optical Corporation, Southbridge, Mass.

Filed Mar. 23, 1972, Ser. No. 237,421
Int. Cl. G01j 3/02
U.S. Cl. 356—85 **5 Claims**



A laser microprobe including a laser and microscope in combination with variable attenuators and pinholes to direct radiation at a microscope object and to spectroscopically

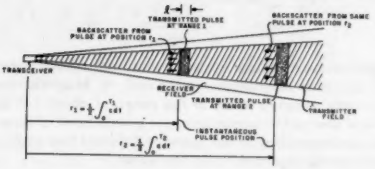
analyze the effects thereof. A combined shutter and occluder permit observation through the eyepiece for alignment and subsequent discharge of the laser without danger to the operator.

3,782,824

APPARATUS AND METHOD FOR MEASURING EXTINCTION COEFFICIENT OF AN ATMOSPHERIC SCATTERING MEDIUM

Arthur P. Stoliar, New York, N.Y., and Richard T. Brown, Jr., Bolton, Mass., assignors to Sperry Rand Corporation, New York, N.Y.

Filed June 1, 1972, Ser. No. 258,688
Int. Cl. G01n *21/00*
U.S. Cl. 356—103 **15 Claims**



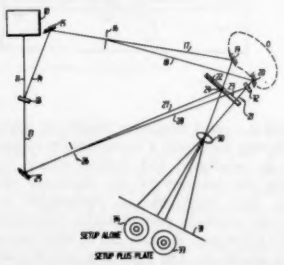
An apparatus and method of determining the extinction coefficient of an atmospheric scattering medium utilizing a transceiver having concentric transmitter and receiver fields, wherein backscattered energy from each of a series of transmitted optical pulses is sampled at two discrete intervals (corresponding to discrete ranges) between successively transmitted pulses and integrated as a function of the ratio of the ranges to provide compensation for differential range attenuation losses. The ratio of the integrator outputs is then obtained and the natural logarithm of the ratio calculated to obtain the extinction coefficient from which a determination of atmospheric visibility may be made.

3,782,825

METHOD AND APPARATUS FOR CHECKING THE STABILITY OF A SETUP FOR MAKING REFLECTION TYPE HOLOGRAMS

Helmut G. Lackner, Salzberg, Austria, assignor to The United States of America as represented by the Administrator of the National Aeronautics and Space Administration, Washington, D.C.

Filed Aug. 18, 1972, Ser. No. 281,877
Int. Cl. G01b *9/02*
U.S. Cl. 356—106 **10 Claims**



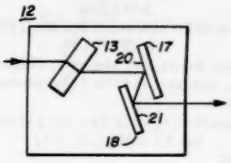
A method and apparatus for checking the stability of a setup for recording reflection-type (white light) holograms. Two sets of interference fringes are simultaneously obtained, one giving information about coherence and stability of the setup alone and the other demonstrating coherence of the entire system, including the holographic recording plate. Thus special emphasis is given to the stability of the plate, any minute vibrations of which may severely degrade or completely destroy the recording.

3,782,826

METHOD AND APPARATUS FOR MEASURING ROTATIONAL ANGLES BY MEASURING CHANGES IN OPTICAL BEAM PATH LENGTH

Warren B. Offutt, Geneva, Ill., assignor to Cutler-Hammer, Inc., Milwaukee, Wis.

Filed Aug. 21, 1972, Ser. No. 282,506
Int. Cl. G01b *9/02*
U.S. Cl. 356—110 **3 Claims**



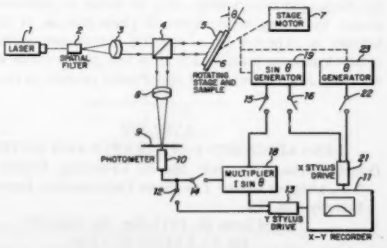
Method and apparatus for converting an angle of rotation of a rotatable device into related measureable changes in the length of the path of an optical beam, said changes in beam path length being measured by a suitable means such as an interferometer. In one embodiment a refractive element positioned on the rotatable device in the path of the optical beam produces the measurable change in optical beam path. In another embodiment a pair of reflective surfaces positioned on the rotatable device in the beam path produce the change in path length. In still another embodiment both the reflective surfaces and the refractive element are positioned in the beam path, nonlinearity in the path length change produced by the reflective surfaces being balanced out by nonlinearity in the path length change produced by the reflective element, resulting in a substantially linear optical path length change with rotational angle.

3,782,827

OPTICAL DEVICE FOR CHARACTERIZING THE SURFACE OR OTHER PROPERTIES OF A SAMPLE

Peter Nisenson, Burlington, and Elliot S. Blackman, Chelmsford, both of Mass., assignors to Itek Corporation, Lexington, Mass.

Filed Aug. 4, 1971, Ser. No. 168,938
Int. Cl. G01b *11/30*
U.S. Cl. 356—120 **15 Claims**



An optical device is disclosed which is useful for characterizing the surface topography of an opaque sample and for

characterizing other properties of transparent samples. In the reflecting mode, a laser is used to illuminate the surface of a rotating sample. Reflected laser light is focused at a pinhole aperture where its intensity is detected. Useful plots of the power spectrum of the reflected coherent light as a function of frequency are obtained which characterize the surface topography of the sample.

A transmitting embodiment of the device is also described wherein the transparent sample is mounted on the back side of a right-angle prism which has its hypotenuse side silvered. A laser beam enters the front side of the prism while the prism is rotated about the center of its hypotenuse. As in the reflecting mode, useful plots of the power spectrum of the transmitted, diffracted coherent light as a function of frequency are obtained which characterize properties of the sample.

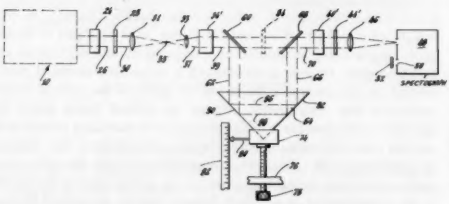
Processes for characterizing surface properties of opaque samples or other properties of transparent samples are also described.

3,782,828

PICOSECOND SPECTROMETER USING PICOSECOND CONTINUUM

Robert R. Alfano, Bronx, and Stanley L. Shapiro, Forest Hills, both of N.Y., assignors to GTE Laboratories Incorporated, Waltham, Mass.

Filed Mar. 9, 1972, Ser. No. 233,086
Int. Cl. G01j *3/30, 3/42*
U.S. Cl. 356—85 **15 Claims**



Spectroscopic investigation of samples by a relatively large interval spectral continuum (e.g., 4000–8000 A) pulses as short as a few picoseconds are described. The continuum is generated by non-linear interaction effects (such as self-phase modulation) in a material subject to extremely high power monochromatic radiation as may be obtained from a mode-locked solid (glass rod) laser, the flux density being further increased by optically concentrating the laser beam. The effective flux density is further increased by self-focussing within the material. A mode-locked laser generating 1.06 micron (10,600 A) pulses of about 4 picosecond duration, which may be converted to 5,300 A pulses of similar duration by a KDP crystal has been successfully used as the source. By exposing the sample to both the continuum and intense monochromatic pulse, inverse Raman (absorption) effects have been observed at both known and previously unknown Raman lines. Other spectroscopic observations may be made at picosecond time scales, including observation of phenomenon in which the sample is exposed to a spectral continuum pulse and a monochromatic pulse (each of a few picoseconds duration) with any desired time lag in either pulse relative to the other.

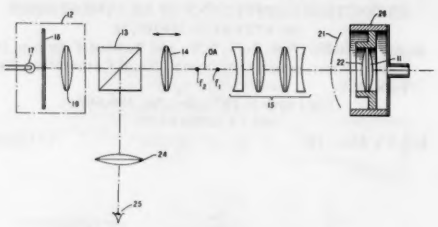
3,782,829

LENS ALIGNMENT APPARATUS AND METHOD

Donald Richard Herriott, Morris Township, Morris County, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed June 28, 1972, Ser. No. 266,987
Int. Cl. G01b *9/00, 11/26*
U.S. Cl. 356—127 **7 Claims**

Apparatus for aligning a lens along an optic axis comprises a source of collimated light, a movable converging lens and a fixed, multi-element, substantially symmetrical lens. The output wavefront projected from the multi-element lens can be varied from convex to planar to concave to match the curvature of the lens being aligned by axially moving the converging lens. By correcting the multi-element lens for aberrations at a



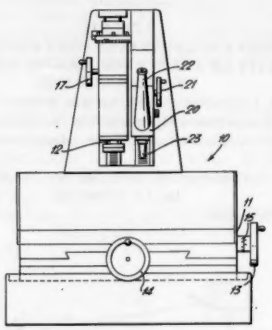
magnification n (where n is a number), abberation correction also occurs at magnifications $1/n$ and -1. Magnification n is preferably selected to be in the range of about 1.8 to 8 to achieve aberration correction over a wide band of magnifications corresponding to a number of different lens surface curvatures to be aligned with the apparatus.

3,782,830

OPTICAL ALIGNING DEVICE FOR POSITIONING THE ELECTRODE OF A SPARK DISCHARGE MACHINING APPARATUS

Shoji Futamura, Kawasaki, Japan, assignor to Institute of Technology Precision Electrical Discharge Works, Kawasaki, Kanagawa, Japan

Filed Aug. 25, 1971, Ser. No. 174,760
Claims priority, application Japan, Sept. 7, 1970, 45/78280
Int. Cl. G01b *11/26*
U.S. Cl. 356—138 **14 Claims**



Disclosed is a spark discharge machining apparatus including a machining electrode, a worktable for supporting a workpiece to be machined and optical means for accurately establishing the location of the electrode relative to the worktable. The worktable is translatable for measured distances into mutually perpendicular directions such that a work-piece positioned thereon can be selectively aligned relative to the electrode. The optical device is positionable at a precisely determinable location on the worktable and includes a tool microscope and one or more prisms for reflecting an image of a reference point on the bottom surface of the electrode into the field of view of the microscope. By moving the

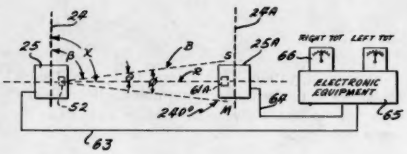
worktable such that a reflected image of a reference point on the electrode is brought into coincidence with a reference point in the optical device, the location of the electrode relative to the worktable is precisely determined.

3,782,831

ANGULAR POSITION TRANSDUCER APPARATUS

David A. Senften, Florissant, Mo., assignor to Hunter Engineering Company, Bridgeton, Mo.

Filed Nov. 5, 1971, Ser. No. 196,034
Int. Cl. G01b *11/26*
U.S. Cl. 356—152 **7 Claims**



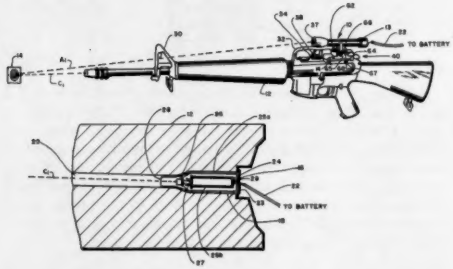
Apparatus for use in measuring any angular relationship between a movable body and a fixed reference axis or point, wherein the measuring is achieved by an angular position transducer. The transducer adapts itself to improved method of measuring angular relationship, particularly where the angles are small, so that small angles can be expanded for easier examination. An example is the determination of vehicle wheel toe angles which are small but important to the proper operation of any vehicle.

3,782,832

METHOD OF BORESIGHT ALIGNMENT OF A WEAPON

Michael Hacskaylo, Falls Church, Va., assignor to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed Apr. 12, 1973, Ser. No. 350,659
Int. Cl. G01b *11/26*
U.S. Cl. 356—153 **10 Claims**



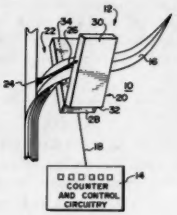
A method of aligning the boresight of a weapon in which the method comprises mounting an aiming light on a boresight mechanism that is attached to the weapon. A canister, which has the same diameter and general shape of a cartridge that the weapon fires and has a light emitting source and beam width narrowing projecting lens therein, is inserted in the breech of the weapon to provide a narrow beam boresight light along the true boresight of the weapon. Battery leads are connected to the light emitting source with the ground lead secured to an end cap of the canister and the hot lead connected to the light emitting source. The battery is located in the aiming light housing. The operator aligns the aiming light with the boresight of the weapon appropriately adjusting the aiming light beam with respect to the boresight light beam, and observing the position of the reflected lights from a target through a viewing scope. The canister may be pulled out of the breech by pulling on the battery leads.

3,782,833

METHOD AND APPARATUS FOR MEASURING AREA

William W. Biggs, and Max D. Clegg, both of Lincoln, Nebr., assignors to Lambda Instruments Co., Lincoln, Nebr.

Filed May 25, 1972, Ser. No. 256,921
Int. Cl. G01b *11/28*
U.S. Cl. 356—158 **16 Claims**



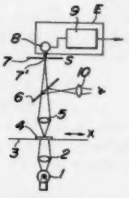
To nondestructively measure the area of a relatively flat object, a length increment encoder controls the signals generated by a width sensing array as a scanning section containing the width sensing array is moved relative to a fixed reference over the object to be measured in a manner dependent on increments of length moved by the scanner and independent of the velocity of the scanner so that the signals from the width sensing array are integrated with respect to length, with the signals being accumulated in a counter to represent the area of the object. In one embodiment, an optical system provides an image of a line of width on the object being scanned, which image is reduced and projected onto a sensing array to improve the resolution of the area measuring instrument and to reduce its bulk.

3,782,834

METHOD OF CORRECTING PHOTOELECTRIC MICROSCOPES

Ryo Fujimori, and Shinichi Kamachi, both of Tokyo, Japan, assignors to Olympus Optical Company Limited, Tokyo, Japan

Filed May 12, 1972, Ser. No. 252,819
Claims priority, application Japan, May 17, 1971, 46/32376
Int. Cl. G01b *11/00*
U.S. Cl. 356—167 **2 Claims**



A method of correcting a photoelectric microscope adapted to generate a photoelectric signal for detecting the end face position of a specimen in which the photoelectric signal is supplied to a pilot meter such, for example, as a conventional

voltmeter or ammeter. The pilot meter has a scale with a level for generating the detecting pulse from a wave form shaping circuit marked thereon. The gain of the photoelectric signal is adjusted such that the ratio of the amplitude from the dark level to the level for generating the detecting pulse to the amplitude from the level for generating the detecting pulse to the bright level is made equal to a value defined by the change in the distribution of the quantity of light rays near the end face of the specimen. The level of the photoelectric signal may also be adjusted to obtain the same result. It is preferable to effect the adjustment of both the level and the gain of the photoelectric signal to obtain the ratio equal to the defined value. The desired ratio can be obtained by observing the deflection of an indication needle of the pilot meter. The specimen is moved to be scanned by a slit and a correct detecting pulse is generated at each instant when each edge of the end face of the specimen passes the center of the slit irrespective of possible change of the quantity of light near the end face of the specimen resulting from changes in configuration of and reflecting power at the specimen and in contrast, illumination, etc.

3,782,835

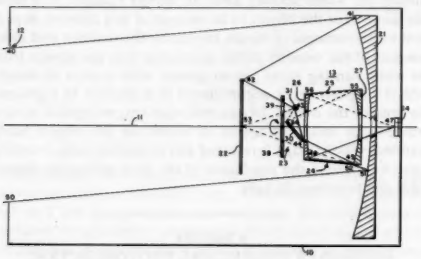
OPTICAL INSTRUMENTS

Irving Raymond Abel, Lexington, Mass., assignor to The United States of America as represented by the Administrator of the National Aeronautics and Space Administration, Washington, D.C.

Filed Apr. 10, 1972, Ser. No. 242,662

Int. Cl. G01j *1/56, 5/48*

U.S. Cl. 356—216 **13 Claims**



A wide angle, low focal ratio, high resolution, catoptric, image plane line scanner which embodies three interrelated main features, a reflective improvement on the Schmidt principle, a polar line scanner in which all field elements are brought to and corrected on axis, and a scanner arrangement in which the aperture stop of the system, located in a relay unit, is effectively imaged at the center of curvature of a spherical primary mirror in place of the physical stop unit in the classical Schmidt configuration, making the system consequently much more compact. The system scans at a large radial angle and an extremely high rate of speed with relatively small scanning mirrors, and since it is symmetrical about the optical axis, the obscuration is independent of scan angle.

3,782,836

SURFACE IRREGULARITY ANALYZING METHOD

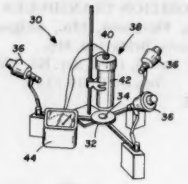
Curt F. Fey, Richardson, and Stacy Bennet Watelski, Dallas, both of Tex., assignors to Texas Instruments Incorporated, Dallas, Tex.

Continuation of Ser. No. 889,407, Dec. 31, 1969, abandoned. This application Nov. 11, 1971, Ser. No. 244,302

Int. Cl. G01n *21/32*

U.S. Cl. 356—209 **6 Claims**

A surface irregularity analyzing system includes structure for directing light toward a surface in a direction having a certain angular relationship to the surface. If the light strikes irregularities in the surface, it is reflected in a direction having an angular relationship to the surface other than equal and opposite the incident direction. The amount of light reflected from irregularities in the surface is determined, either photographically or photoelectrically, to provide an analysis of irregularities in the surface.



3,782,837

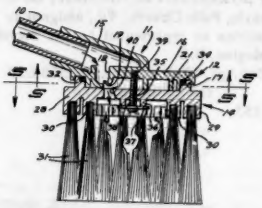
FOUNTAIN BRUSH

Robert G. Feldmann, Eden Prairie, Minn., assignor to Pyroil Company, Inc., La Crosse, Wis.

Filed July 7, 1972, Ser. No. 269,827

Int. Cl. A46b *11/04*

U.S. Cl. 401—281 **3 Claims**



A fountain brush unit wherein an oblong brush is mounted at one end of an elongated tubular handle, the other end of which is adapted to be connected to a source of water, the brush being mounted for selective adjustment between positions aligned with or perpendicular to the handle and wherein the brush is provided with various openings in the back thereof whereby, in at least one position of the brush, water may flow through the brush in a jet stream and in at least one other position water is dispersed as a spray.

3,782,838

SHAFT ASSEMBLY

Wladimir Tiraspolsky, Issy-les-Moulineaux, and Roger Francois Rouviere, Aix-en-Provence, both of France, assignors to Turboservice, S.A., Paris, France

Filed Oct. 30, 1970, Ser. No. 85,684

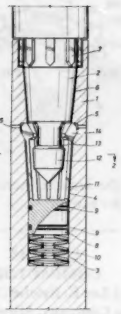
Claims priority, application France, Nov. 28, 1969, 6941085

Int. Cl. F16b *7/00*

U.S. Cl. 403—32 **4 Claims**

A latch for connecting two axially aligned shafts is movable

between a position connecting the shafts to a position where the shafts are disconnected. A piston is positioned in a



cylinder so changes in ambient pressure will move the piston and move the latch between the two positions.

3,782,839

REINFORCING BAR, BOLT OR THE LIKE

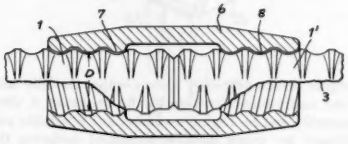
Martin Majewski, Schwicheldt, Germany, assignor to Stahlwerke Peine-Salzgitter AG, Peine, Germany

Filed Aug. 30, 1971, Ser. No. 176,181

Claims priority, application Germany, Sept. 1, 1970, P 20 43 274.0

Int. Cl. F16b *7/06*

U.S. Cl. 403—43 **5 Claims**



A rod of circular cross-section is provided on opposite sides with two sets of equispaced ribs, each extending over substantially 180°, which are tangentially faired at their ends into the rod surface at a median plane separating the two sets. The ribs of these sets are relatively offset by half their spacing whereby they can mate with a female helical thread of corresponding pitch in a coupling nut or anchor sleeve.

3,782,840

MECHANICAL COUPLING

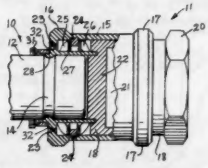
Alexander R. Brishka, Mamaroneck, N.Y., assignor to Sealectro Corporation, Mamaroneck, N.Y.

Filed Oct. 5, 1971, Ser. No. 186,667

Int. Cl. F16b *7/00*

U.S. Cl. 403—361 **8 Claims**

A mechanical coupling which locks into place without relative rotation of the male and female components. The device may include hydraulic conduits, electrical multi-connectors or a high frequency coaxial line. An annular groove in the male component or plug is engaged by an annular bead formed on the inside surface of a set of fingers secured to the female component or socket. The fingers are locked in place by



locking ring formed integral with an outer sleeve. The outer sleeve is moved in an axial direction when the components are attached or separated.

3,782,841

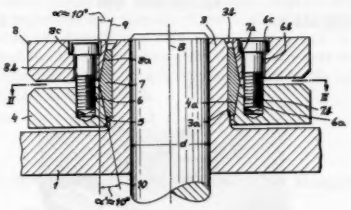
SYSTEM FOR SECURING AN ANNULAR MEMBER TO A SHAFT FOR TORQUE TRANSMISSION THEREBETWEEN

Werner Winckelhaus, Manteuffelstrasse 18, Duisburg, Germany

Filed Feb. 18, 1972, Ser. No. 227,505

Int. Cl. B60b *27/06*

U.S. Cl. 403—373 **8 Claims**



An annular member, such as a flywheel, pulley, sprocket wheel or disk, is secured to a shaft for torque transmission therebetween by a hub sleeve having an internally smooth, circumferentially continuous nonsplit configuration adapted to smoothly fit over the shaft. A doubly-conical compression ring is seated on the sleeve which is composed of steel and is elastically compressible. The compression ring is clamped between a pair of annular thrust rings having similar conicities and provided with equispaced bores through which bolts are threaded to draw the thrust rings together and urge the sleeve under radial compression against the shaft. When the torque capacity of the system is M, the axial compression force S is established such that the relationships $S = 2.3\ M/(d-20)$ or $S = 3\ M/(d-20)$ result, where d is the diameter of the shaft. Under these conditions, the sleeve is elastically deformed in a circumferentially undulating pattern and elastically deforms the shaft in a corresponding manner to bring about a mating noncircular fit between the sleeve and shaft to prevent slippage.

3,782,842

ADJUSTABLE SELF-LOCKING CLAMP FOR WIRES, PIPES AND OTHER STRUCTURAL SHAPES

Horst Wilhelm Benker, Heilbronn, Germany, assignor to Bunker Ramo Corporation, Oak Brook, Ill.

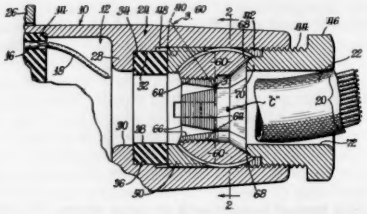
Filed July 28, 1971, Ser. No. 166,790

Int. Cl. F16b *9/00*

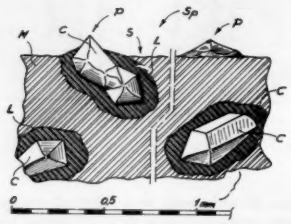
U.S. Cl. 403—374 **6 Claims**

A cable clamp capable of firmly gripping the exterior sur-

faces of an electrical cable, pipe, conduit or other shape by an adjustable compressive force while simultaneously effecting an airtight seal between the cable and the housing in which the clamping mechanism is mounted.



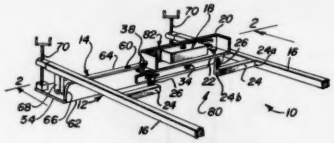
3,782,843
ROAD SURFACE MARKING MATERIAL AND MARKED ROAD
Ludwig Eigenmann, Vacallo, Ticino, Switzerland
Filed June 15, 1971, Ser. No. 153,218
Claims priority, application Italy, June 16, 1970, 26063 A/70
Int. Cl. E01f 9/00
U.S. Cl. 404—9 **16 Claims**



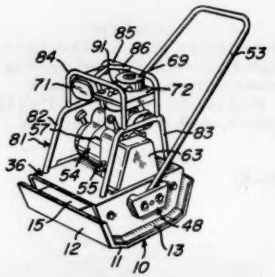
The disclosure describes the provision on the pavement of streets and highways, of traffic regulating lines and signs having an upper surface exposed to traffic and consisting of the upper face of a layer secured on and to said pavement, said surface being essentially planar, smooth, neither receptive nor retentive of dirt and having high light reflectivity. A plurality of protuberances jointly covering not more than 10, and preferably not more than 5, percent of the area of said surface are spacedly arranged thereon, each protuberance having a sharp tip formed by the upwardly projecting portion of crystal particles, such as corundum of hardness greater than value 7 of the Mohs' Scale and firmly secured to said layer, thereby providing non-skid properties to said upper surface.

3,782,844
SLOPE CONTROL FOR PAVING MACHINES
Luther B. Burgin, Poplar Bluff, Mo., assignor to Burgin Electronic Grade Control, Inc., Poplar Bluff, Mo.
Continuation-in-part of Ser. No. 82,983, Oct. 22, 1970, abandoned. This application June 15, 1972, Ser. No. 262,949
Int. Cl. E01c 19/00
U.S. Cl. 404—84 **13 Claims**

Apparatus for sensing twisting of the screed of a paver including a pair of arms having their outer ends rigidly supported from the screed extending toward one another with their inner ends free. A gravity-type slope sensor is mounted on the inner ends of the arms to increase the sensitivity of the sensor to twisting of the screed.



3,782,845
COMPACTOR
Eugene C. Briggs, and Lee E. Reichel, both of Dayton, Ohio, assignors to Koehring Company, Milwaukee, Wis.
Filed Aug. 27, 1971, Ser. No. 175,444
Int. Cl. E01c 19/40
U.S. Cl. 404—133 **21 Claims**

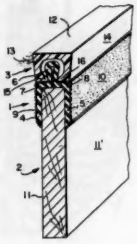


An engine driven vibratory plate compactor fully self-contained and easily maneuverable by the operator. A vibratory plate assembly and an engine assembly are separable units interconnected by shock absorbing means isolating the superstructure of the compactor from vibration effects at the plate, with the maneuvering handle being doubly isolated substantially to reduce operator fatigue. An exciter compartment on the vibratory plate is sealed to exclude dirt and the plate on its upper surface is inherently self-cleaning. Engine components overlie the vibratory plate in a close coupled compact arrangement and include a multi-functional roll-bar type frame. An adjustable throttle control enables variable compaction rates to suit varying work requirements.

3,782,846
JOINT FORMING AND SEALING DEVICE
Robert J. Johnson, 604 Woodbine Ave., Towson, Md.
Continuation-in-part of Ser. No. 35,315, May 7, 1970. This application Feb. 28, 1972, Ser. No. 229,828
Int. Cl. E01c 11/04
U.S. Cl. 404—48 **8 Claims**

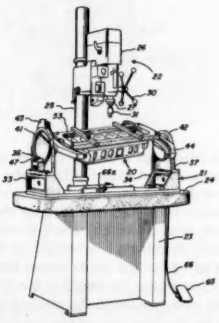
A joint forming and sealing device is provided comprising essentially three parts, a flexible seal member including an expandable loop and end portions, a top cap having a portion engageable with the expandable loop and a slot forming carrying means engaged with the end portions of the flexible seal member. The device is adapted to be inserted into the upper surface of freshly poured concrete with the slot forming carrying means forming a slot and transporting the seal member

and top cap into position with the upper surface of the top cap flush with the upper surface of the concrete and with the seal member substantially below the surface. Particles of aggregate are adhered to the end portions of the flexible seal member



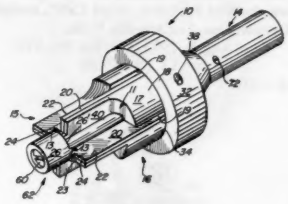
and grip the concrete as the concrete contracts to form the joint. The top cap may be removed at any time after the concrete has cured leaving the flexible seal in position beneath the concrete surface.

3,782,847
METHOD AND APPARATUS FOR RECONDITIONING CYLINDER HEADS
Leonard J. Kulzer, 1909 W. 5th St., Winona, Minn.
Filed Dec. 29, 1971, Ser. No. 213,445
Int. Cl. B23b *35/00*
U.S. Cl. 408—1 **6 Claims**



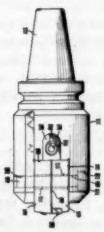
Apparatus for supporting a cylinder head, for reconditioning of the valve guides and seats, in a simple machine of the drill press type, without requiring complex means for positioning the reconditioning cutters and reamers at many different angles, including a first structure supporting a cylinder head for rotation about two mutually orthogonal axes to bring openings to be reconditioned into proper axial alignment with a reconditioning tool, and a second structure forming a support for the first structure and enabling translation of the latter with respect to the bed of the machine, as well as a novel method of reconditioning cylinder heads made possible by use of the apparatus.

3,782,848
COMBINATION EXPANDABLE CUTTING AND SEATING TOOL
John Pfeifer, 1807 Oak Ave., Northbrook, Ill.
Filed Nov. 20, 1972, Ser. No. 308,127
Int. Cl. B23b *29/034*
U.S. Cl. 408—156 **5 Claims**



An expandable tool for a combined seating and cylindrical cutting operation to be performed in a lathe, drill press or jig boring machine having a plurality of radially disposed formed cutters inserted in a slotted tool holder which is expandable by using an ordinary screw driver for screwing a male U.S. Standard thread of a given pitch diameter and number of threads per inch into a female U.S. Standard through-tapped hole having some imperfect lead threads of the same pitch diameter and number of threads per inch centrally disposed in the slotted tool holder for spreading the elements between the slots and the reaming cutting edges therein apart by the screwing of the male thread therein.

3,782,849
BORING HEAD
Sutemaru Mizoguchi, No. 1738, Kita-tawara-cho, Ikoma City, Japan
Division of Ser. No. 93,932, Dec. 1, 1970, Pat. No. 3,730,636.
This application Mar. 30, 1972, Ser. No. 239,647
Int. Cl. B23q *3/12*; **B23b** *29/02, 3/24*
U.S. Cl. 408—197 **1 Claim**



A boring head with bit adjusting means. The head has a body having a shank portion and a transverse channel in the lower part thereof and a transverse hole therein intersecting the channel and at right angles thereto. A pair of bit mounting bases is slidably positioned in the channel and a transverse hole extends through the bases generally aligned with the transverse hole in said body. A bolt is rotatably mounted in one end of the transverse hole in the body, extending through the transverse hole in the bases and threaded into the other end of the transverse hole in the body, the hole in the bases is larger than the bolt for permitting some relative movement

between the bases and the bolt. A bit is secured to each of the bases, one being at one end of one base and the other being at the other end of the other base. Wedge means is provided for adjusting the positions of the bases downwardly in the channel when the bolt is only gently tightened.

3,782,850

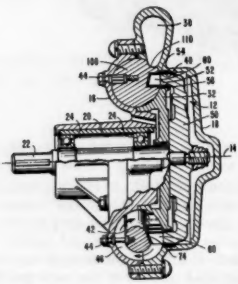
ENERGY TRANSFER MACHINE

Hans Egli, Santa Monica; Fredrick E. Burdette, and James H. Nancarrow, both of Torrance, all of Calif., assignors to The Garrett Corporation, Los Angeles, Calif.

Filed Aug. 9, 1971, Ser. No. 169,997

Int. Cl. F04d *5/00*

U.S. Cl. 415—53 T **19 Claims**



An energy transfer machine is disclosed including a casing enclosing a stator ring, the casing and ring conjointly defining a smooth wall, annular fluid passage extending about the axis of rotation between inlet and outlet passages formed in the casing. A rotor within the casing includes a blade cascade projecting in cantilever fashion into the annular fluid passage, each blade having leading and trailing edges extending generally parallel with the axis of rotation of the machine, the edge nearer the axis of rotation being longer than the edge further from the axis. The geometries and relative positions of the blades and annular fluid passage are such that the radial distance from the axis of rotation of the centroid of the meridional cross-section of the annular fluid passage is larger than the radial distance of at least the major portion of the edge nearer the rotational axis and smaller than the radial distance from the axis of rotation of at least the major portion of the edge further from the rotational axis.

Machines according to the invention are also characterized by constructional features which minimize the number of castings required and thereby greatly simplify the fabrication and structure to minimize cost.

3,782,851

DIE CASTABLE CENTRIFUGAL FAN

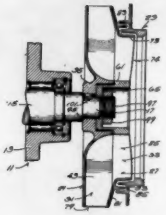
Eugene R. Hackbarth, Kenosha, Wis., and Harry M. Ward, III, Waukegan, Ill., assignors to Outboard Marine Corporation, Waukegan, Ill.

Filed Jan. 2, 1973, Ser. No. 320,073

Int. Cl. F04d *17/08, 29/28*

U.S. Cl. 415—213 **4 Claims**

Disclosed herein is a fan assembly comprising a first fan member including a plurality of angularly spaced vane portions extending perpendicularly of the axis of intended fan rotation and perpendicularly to a plane perpendicular to the axis of intended fan rotation and having axially outer edges, a second fan member including a second plurality of vane portions corresponding in number and angular spacing to the vane portions of the first member, each of the second member vane portions having an axially inner edge and an axially outer part extending arcuately in a plane extending parallel to the intended axis of fan rotation and perpendicularly to a plane extending radially from and containing the intended axis of fan rotation, and separable interfitting means on the first and second fan members for aligning the outer edges of the vane



portions of the first fan member with the inner edges of the vane portions of the second fan member and for rotatably driving one of the first and second fan members in response to rotation of the other of the first and second fan members.

3,782,852

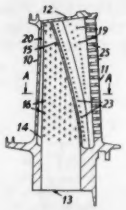
GAS TURBINE ENGINE BLADES

Alan Moore, Bristol, England, assignor to Rolls-Royce (1971) Limited, London, England

Filed Aug. 22, 1972, Ser. No. 282,779

Int. Cl. F01d *5/18*

U.S. Cl. 416—97 **10 Claims**



A gas turbine blade has a hollow interior space in which is disposed a double-walled insert. The insert forms chambers with the blade walls, and together with the interior of the insert these chambers form part of a path for the flow of cooling fluid through the blade. The chambers provide separated in-flow and out-flow chamber(s), arranged so that cooling fluid supplied from one end of the blade passes through the in-flow chambers to the interior of the insert at the leading edge of the blade, and from there passes to the trailing edge of the blade where it leaves the blade by way of the out-flow chamber(s).

3,782,853

FAN BLADE ASSEMBLY

Manfred Frister, Schwieberdingen, Germany, assignor to Robert Bosch GmbH, Stuttgart, Germany

Filed Oct. 8, 1971, Ser. No. 187,748

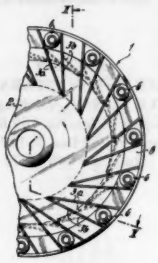
Claims priority, application Germany, Oct. 9, 1970, P 20 49 679.1

Int. Cl. F04d *17/08*

U.S. Cl. 416—132 **15 Claims**

A fan blade assembly comprises a circular mounting plate which is rotatable about an axis. A plurality of blades are arranged spaced from each other about the axis of rotation and define between each pair of adjacent blades a passage for air passing therethrough. The blades have free moving ends

which are deflected in response to the rotation of the mounting plate. During rotation of the mounting plate, the free ends of the blades are deflected towards an adjacent blade to thereby decrease the cross-sectional area of the passage for the air. With increasing rotational speed of the mounting plate, the cross-sectional area of the passage decreases to thereby reduce the drag on the blades while maintaining the amount of air moved by the fan blade assembly.

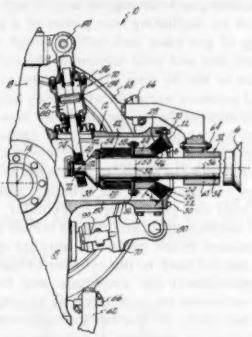


3,782,854

ELASTOMERIC BEARING FOR A HELICOPTER ROTOR

Robert C. Rybicki, Trumbull, Conn., assignor to United Aircraft Corporation, East Hartford, Conn.

Filed July 5, 1972, Ser. No. 268,963
Int. Cl. B64c *27/38*
U.S. Cl. 416—134 **20 Claims**



An elastomeric bearing comprising two elastomeric bearings in series connecting a helicopter blade to a helicopter rotor hub so as to be articulated and have at least three degrees of freedom, namely, flapping motion, lead-lag motion and pitch motion, and wherein said bearing occupies minimal space envelope and the two elastomeric bearings thereof share the motion in at least one of the degrees of freedom.

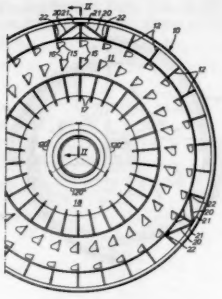
3,782,855

VANE WHEELS

Armand Batteux, Paris, France, assignor to Societe Anonyme Francaise Du Ferodo, Paris, France

Filed Apr. 3, 1972, Ser. No. 240,517
Claims priority, application France, Apr. 9, 1971, 7112664
Int. Cl. F01d *5/04*
U.S. Cl. 416—180 **18 Claims**

A vane wheel for fluid couplings or torque converters especially for motor vehicles. The vane wheel comprises inner and outer toroidal surfaces and vanes disposed therebetween, in addition anti-rotational bracing members are disposed therebetween Pairs of bracing members may be symmetrically arranged about vanes obliquely between the toroidal surfaces and the intermediate vane.

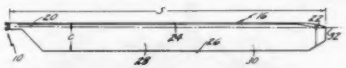


3,782,856

COMPOSITE AERODYNAMIC BLADE WITH TWIN-BEAM SPAR

Michael J. Salkind, Newtown, and William C. Reinfelder, Woodbridge, both of Conn., assignors to United Aircraft Corporation, East Hartford, Conn.

Filed May 31, 1972, Ser. No. 258,333
Int. Cl. B64c *27/46*
U.S. Cl. 416—226 **108 Claims**



A composite aerodynamic blade having twin-beam spars, which blade is fabricated in two halves which are eventually joined.

Each spar assembly includes a spar comprising a plurality of high tensile strength fiber members bonded together to form a fiber composite extending from substantially the blade tip to the blade root and a connecting loop inboard of the blade root end of the core. A blade cuff member, including a selectively shaped wedge member extending through the loop and bonded to the fibers thereof, includes redundant provisions for connecting the blade cuff to the rotor hub. Two such spar assemblies are bonded to opposite sides of the blade cover so that the cover carries blade torsional loads. This forms a twin-beam blade in which triple, redundant centrifugal and bending load paths are present between each of the spar assemblies and the hub. For purposes of shape stability, a central low-density core member may be bonded to the spar assembly and cover. In a modified blade, a torque-tube may envelop and be bonded to the spar assemblies and blade trailing edge pockets may be bonded thereto to form the blade cross section.

3,782,857

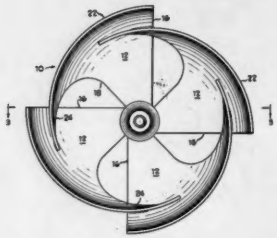
DEVICE FOR AIR AND FLUID ACCELERATION AND METHOD OF MAKING SAME

Olgerts Janis Svilans, 4508 W. Schubert Ave., Chicago, Ill.

Filed Aug. 26, 1970, Ser. No. 67,160
Int. Cl. F04d *29/38*
U.S. Cl. 416—236 **4 Claims**

A rotational device adapted to act in a fluid medium and provide a reaction therewith including a plurality of wing-like

blades, said blades being generally disposed in a plane perpendicular to the axis of rotation and having outer radial portions generally disposed in a direction parallel to said axis to



prevent any fluid medium from escaping radially rather than travelling axially along the axis of rotation of said device. The invention further comprises a method for making a wing shape for a rotational device of this character.

3,782,858

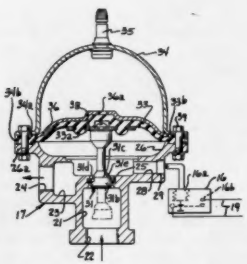
CONTROL APPARATUS FOR A WATER SUPPLY SYSTEM

Elmer M. Deters, Muscatine, Iowa, assignor to Red Jacket Manufacturing Company, Davenport, Iowa

Filed Oct. 24, 1972, Ser. No. 300,211

Int. Cl. F04b *49/02, 49/08*

U.S. Cl. 417—26 **6 Claims**



A control apparatus for a water supply system having a motor operated pump for pumping water through a delivery line to one or more valved outlets. The control apparatus includes a pressure switch responsive to the pressure in the delivery line and operable at preselected upper and lower pressure limits to respectively stop and start the pump motor, and a valve which regulates flow from the pump to the delivery line and is operated by a pneumatically loaded diaphragm responsive to the pressure in the delivery line to maintain the pressure in the line substantially constant at a value intermediate the upper and lower pressure limits during normal flow from the delivery line, with a bypass for passing a restricted flow of fluid into the delivery line, when the flow from the delivery line is shut off and the valve is closed, to increase the pressure in the delivery line and operate the switch to shut off the pump motor. The diaphragm also functions as a small expansion chamber to limit the frequency at which the control apparatus will cycle the pump motor, when water is drawn from the delivery line at a rate below the bypass rate, and provision is made for controlling the expansion and contraction of the diaphragm in a manner to effect a rapid increase in pressure into the delivery line to shut off the pump motor, when flow from the delivery line is terminated.

3,782,859

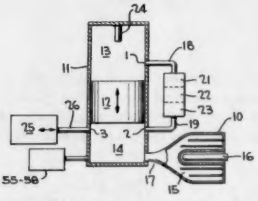
FREE PISTON APPARATUS

Mark Schuman, 101 G St., S.W., Washington, D.C.

Continuation-in-part of Ser. No. 169,003, Aug. 4, 1971, abandoned. This application Dec. 7, 1971, Ser. No. 205,651

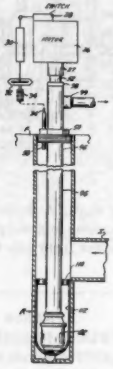
Int. Cl. F04b *19/24*

U.S. Cl. 417—207 **119 Claims**



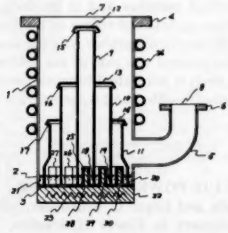
A by-pass including a heat regenerator is provided for a cylinder in which an oscillating free piston of a gas pump is driven. Shunting of gas back and forth through the by-pass between disparate hot and cold regions of the cylinder while the piston coasts in the by-pass region produces a periodic temperature and pressure variation which may be applied to a load. In one embodiment the by-pass includes in seriatim cold, regenerator, and hot chambers. In another embodiment the heating and/or cooling means are located within the cylinder. In still another embodiment preheated gas is drawn through an inlet into the hot end portion of the cylinder, and cool gas is drawn into the cool end portion of the cylinder. In one embodiment piston oscillation is sustained by means of a thermal leg chamber included in the piston. In another embodiment pressure pulses are fed back to the cylinder to sustain oscillation. In one embodiment the amplitude and frequency of pump pressure variations are controlled by varying the coasting portion of the cycle. In another embodiment the pump output is controlled by shunting a variable amount of gas around the heater and/or around the cooler, or to a second by-pass containing only a regenerator. In a further embodiment, the pressure variations are controlled by varying the feedback of pressure pulses. In still another embodiment pumping is controlled by varying the geometry of a thermal leg chamber or the portion of the cycle during which it is operative. Variations in temperature or geometry of pump components are also used as pump control means in certain embodiments. In one embodiment the pump produces electrical power by driving a free piston linear alternator wherein pumping controls such as the above can be used to maintain relatively constant voltage and frequency under conditions of variable load. In another embodiment the pump may be used to pump gases from one region to another, or from one pressure to another. In a further embodiment the pump may be used as a cooling device. In certain embodiments the pump may be used to produce pressure variations in a medium. In embodiments utilizing a thermal lag chamber for sustaining oscillation of the free piston, the relatively little coupling between the load and the free piston results in a pump which is essentially stall-free.

3,782,860
SUMPLESS PUMP
Warren H. DeLancey, Elyria, Ohio, and Donald Weisman, Southfield, Mich., assignors to Flood Control Valve Company, Detroit, Mich.
Filed Mar. 10, 1972, Ser. No. 233,476
Int. Cl. F04b *49/02, 17/00, 35/04*
U.S. Cl. 417—41 **1 Claim**



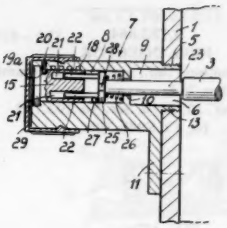
A pump assembly adapted to be installed as a complete assembly in a conventional pipe riser with the pump assembly being so dimensioned that all its parts may be inserted in the upper end opening of a conventional riser of about 4 inch diameter.

3,782,861
OIL DIFFUSION VACUUM PUMP
Taizo Abe, Himeji, Japan, assignor to Ayumi Industries Company, Limited, Kobe, Japan
Filed Nov. 13, 1972, Ser. No. 305,938
Claims priority, application Japan, May 10, 1972, 47-46698
Int. Cl. F04f *9/00*
U.S. Cl. 417—153 **1 Claim**



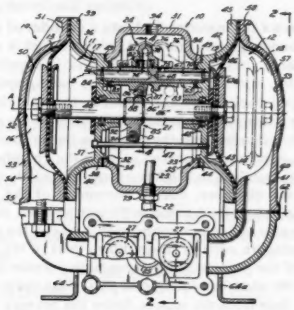
An oil diffusion pump which has a plurality of coaxially arranged cylindrical chimneys extending from the bottom of a cylindrical envelope. The bottom of said envelope has hollow projections extending upwardly between the chimneys and a heating element has portions thereof extending into said hollow projections.

3,782,862
ANTI-THEFT DEVICE
Ferdinando Cammi, Via Cipelli 20, Piacenza, Italy
Filed Jan. 28, 1972, Ser. No. 221,720
Claims priority, application Italy, Feb. 4, 1971, 20173 A/71
Int. Cl. B60r *25/00;* **F02m** *63/02*
U.S. Cl. 417—313 **2 Claims**



An anti-theft device particularly for vehicles with injection engines utilising a rack rod for adjusting the fuel feed thereof comprising a key-operated lock member for the rack rod adapted to lock it on command in a position which blocks the fuel feed.

3,782,863
SLIDE VALVE APPARATUS
Warren E. Rupp, Mansfield, Ohio, assignor to The Warren Rupp Company, Mansfield, Ohio
Filed Nov. 16, 1971, Ser. No. 199,250
Int. Cl. F04b *43/06;* **F01l** *31/02*
U.S. Cl. 417—393 **5 Claims**



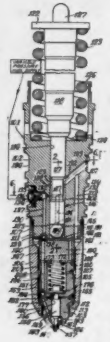
An air-operated double diaphragm pump having a pair of power fluid chambers and a control valve for directing air alternately to each chamber while permitting air to exhaust from the other chamber. The valve includes an elongated member and a second member slidably mounted in fluid tight sealing contact on an elongated member. A flexible conduit is connected at one end to a port in the slidable member and at its other end to a source of fluid under pressure. In one valve position the slidable member establishes a fluid supply path from the flexible conduit through the port in the slidable member in alignment with a port in the elongated member communicating only with one power fluid chamber, and a fluid exhaust path through another port in the elongated member communicating only with the second power fluid chamber of the pump and the atmosphere. In a second posi-

tion a fluid supply path is established to the second power fluid chamber through the port in the slidable member and the other port in the elongated member, and a fluid exhaust path from the first power fluid chamber through the first port in the elongated member to the atmosphere. In intermediate position of the slidable member no fluid paths are provided. A link arrangement operated by reciprocations of the pump rapidly moves the slidable member to and between these positions.

3,782,864
FUEL INJECTOR

Julius P. Perr, Columbus, Ind., assignor to Cummins Engine Company, Columbus, Ind.

Filed Dec. 30, 1970, Ser. No. 102,799
Int. Cl. F04b *7/04*
U.S. Cl. 417—493 **22 Claims**



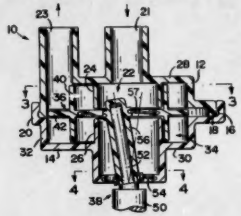
A fuel injector for injecting fuel into a cylinder of an internal combustion engine is disclosed, wherein fuel is received from a variable pressure fuel supply and is supplied to a chamber in the injector, the injector also having spray holes for discharging fuel from said chamber to the cylinder. A reciprocable plunger in the injector is utilized to decrease the volume of the chamber and thus increase the pressure of the fuel therein. A pressure actuated valve in the chamber serves to permit fuel injection through the spray holes only when the pressure in the chamber, due to movement of the plunger, reaches a predetermined value sufficient to open the valve. The injector also includes a connection between the chamber and a low pressure zone or drain during part of the cycle of movement of the plunger. This connection permits fuel to be sucked into the chamber during said part of the cycle from the drain rather than from the supply. Since the plunger does not suck fuel from the supply, the quantity of fuel entering the chambe from the supply will be a function of the pressure of the fuel delivered by the supply.

3,782,865
SEALING SLEEVE

Arthur R. Braun, 15 S. Jandus Rd., Cary, Ill.

Filed Mar. 5, 1971, Ser. No. 121,286
Int. Cl. F01c *1/02*; **F03c** *3/00*; **F04c** *1/02*
U.S. Cl. 418—56 **8 Claims**

A rotary pump comprising a housing having upper and lower portions removably connected to one another, each of which includes cooperatively arranged walls extending from the bases thereof to form an inner chamber. A piston also having an annular wall is arranged to move in an eccentric fashion such that the annular wall of the piston moves between the outer sidewall of the housing and the inner annular cooperatively positioned walls on the interior of the housing. Drive means comprising a drive shaft is interconnected to the piston by means of a drive shaft extension means mounted on the drive shaft so as to produce an eccentric motion of the piston

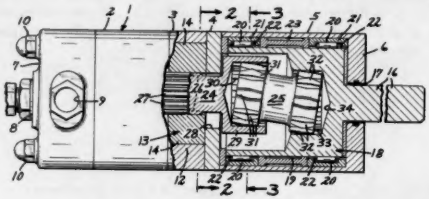


upon rotation of the shaft. A sealing diaphram is mounted relative to both the housing and the piston so as to completely separate the drive means from any fluid passing through the pump housing.

3,782,866
ROTARY FLUID PRESSURE DEVICE

Hugh L. McDermott, 6101 Ashcraft Ave., Minneapolis, Minn.

Filed May 30, 1972, Ser. No. 257,915
Int. Cl. F16d *3/04*; **F01c** *1/02*; **F03c** *3/00*
U.S. Cl. 418—61 **4 Claims**



A rotary fluid pressure positive displacement mechanism operative selectively as a fluid pump or motor and including a relatively stationary internally toothed member and a relatively rotary externally toothed rotor having one tooth less than the internally toothed member and in meshing engagement therewith. The rotor partakes of rotary and orbital movement within the internally toothed member with the axis of the rotor describing an orbit around the axis of the internally toothed member. A drive shaft is journalled for rotation on the axis of the internally toothed member and is operatively connected to the rotor.

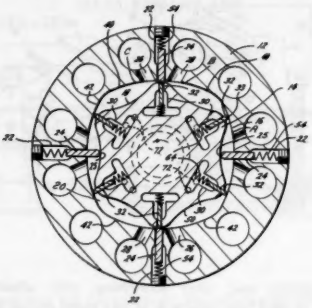
3,782,867
FLUID POWER CONVERTER

Charles R. Gerlach, and Edgar C. Schroeder, both of San Antonio, Tex., assignors to Rineer Hydraulics, Inc., Corpus Christi, Tex.

Filed Apr. 3, 1972, Ser. No. 240,387
Int. Cl. F01c *1/00*; **F03c** *3/00*; **F04c** *1/00*
U.S. Cl. 418—82 **8 Claims**

A fluid power converter, such as a hydraulic fluid pump or motor, having a rotor and stator each having sealing vanes and in which the stator includes a contoured periphery consisting of harmonic curves which reduces rotor vane acceleration and provides a constant output source independent of rotational angle. The rotor periphery consisting of contoured curves

shaped to impart harmonic motion to the stator vanes for reducing stator vane accelerations. The rotor and stator vanes having different thicknesses and provided with hydraulic and spring loading with the thicker vanes having a higher loading



force thereby preventing destructive detenting of the vanes with respect to each other. Fluid timing plates for the rotor vanes sealing the hydraulic loading fluid in the rotor vane pockets during vane interaction periods for reducing wear and noise of the vane.

3,782,868

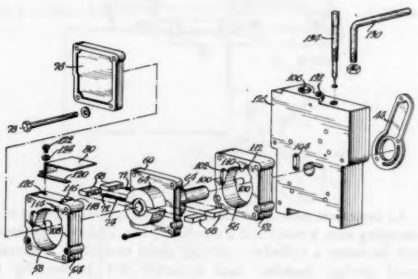
ROTARY VANE PUMP

Joseph A. LeBlanc, Jr., Glen Ellyn, Ill., assignor to Componetrol, Inc., Chicago, Ill.

Filed Nov. 26, 1971, Ser. No. 202,292

Int. Cl. F01c *21/00*

U.S. Cl. 418—83 **4 Claims**



A rotary vane vacuum pump having a direct connection between a rotary motor and the vanes. The pump rotors are adapted to be submerged in oil and a unique noise suppressing device that permits oiling is employed on the outlet port. The same includes a flexible reed slightly spaced from the outlet port so that oil may be drawn in through the outlet port for lubrication purposes while suppressing the noise attendant the exit of gas therefrom at other points of the operating cycle.

3,782,869

OIL SEAL CONSTRUCTION FOR ROTARY ENGINES

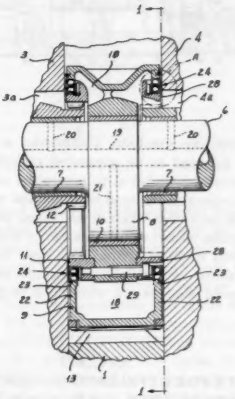
Johannes Steinwart, Bad Friedrichshall, and Armin Bauder, Neckarsulm, both of Germany, assignors to Audi Nsu Auto Union Aktiengesellschaft, Neckarsulm and Wankel G.m.b.H., Lindau, Bodensee, Germany

Filed Aug. 18, 1972, Ser. No. 281,765

Claims priority, application Germany, Sept. 6, 1971, P 21 44 497.3

Int. Cl. F01c *19/12*

U.S. Cl. 418—142 **7 Claims**



A double annular oil seal disposed between the rotor and the side wall of a trochoidal rotary engine, with provision for cooling the oil seal assembly.

3,782,870

APPARATUS FOR EXTRUDING A PARTIALLY FOAMED THERMOPLASTIC PRODUCT

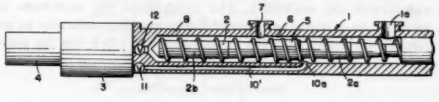
Heinz Schippers, Remscheid, Germany, assignor to Barmag Barmer Maschinenfabrik Aktiengesellschaft, Wuppertal, Germany

Filed Feb. 24, 1972, Ser. No. 229,074

Claims priority, application Germany, Feb. 25, 1971, 2108936

Int. Cl. B29d *27/00*

U.S. Cl. 425—4 C **19 Claims**



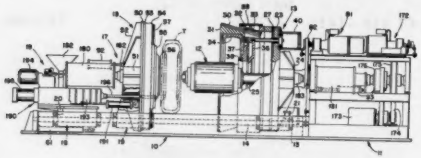
Process and apparatus for producing a partially foamed thermoplastic polymer product in a single screw extruder by dividing an initial melt stream of the polymer into separate partial melt streams conveyed individually by the extruder to a shaping or forming die, uniformly mixing a foaming agent with at least one but not all of the separate and individually conveyed partial melt streams, and then rejoining all of said melt streams in the die in abutting core and shell layers with foaming of at least one but not all of said layers.

3,782,871

CARE FOR TIRE MOLDING MACHINE

Leonard G. Turk, Akron, Ohio, assignor to NRM Corporation, Akron, Ohio

Filed May 17, 1971, Ser. No. 143,847
Int. Cl. B29h 5/06
U.S. Cl. 425—54 11 Claims



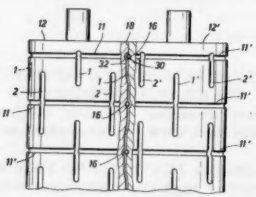
A tire molding machine comprising a core or center mechanism adapted to be expanded radially and converted from a generally cylindrical to a toroidal or tire shape, side wall mold sections and a tread mold section movable into position vis-a-vis such core when in tire shape to form a tire mold cavity, injection means to fill such cavity with an elastomer to be heat cured to form a tire, such core being collapsed to cylindrical shape and radially contracted while the side wall and tread mold sections are withdrawn to permit removal of the tire.

3,782,872

APPARATUS FOR EXTRUDING WOVEN PLASTIC MESH

George S. Nalle, Jr., 108 W. 2nd St., Austin, Tex.

Filed Mar. 15, 1972, Ser. No. 234,815
Int. Cl. B29f 3/12
U.S. Cl. 425—131 13 Claims



Apparatus for producing a woven plastic mesh product extrudes plastic mesh from molten thermoplastic by continuously extruding first and second sets of parallel filaments through extrusion orifices between a pair of abutting rotatable cylindrical die members. The cylindrical die members are grooved to extrude two sets of filaments perpendicular to and passing on opposite sides of one another when the die members are counterrotated in register.

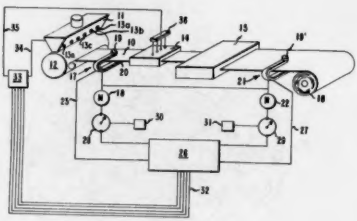
3,782,873

THICKNESS CONTROL APPARATUS FOR POLYMERIC FILM STRUCTURES

Frederick Lynnknowles, Florence, S.C., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

Division of Ser. No. 761,241, Sept. 20, 1968, Pat. No. 3,649,726. This application Dec. 8, 1970, Ser. No. 96,284
Int. Cl. B29d 7/22
U.S. Cl. 425—141 11 Claims

An apparatus is provided for manufacturing film structures of organic thermoplastic polymeric materials of improved thickness uniformity across the width thereof. Briefly, the method comprises measuring the thickness of a film structure at any location across the width thereof before stretching, measuring the thickness of said film structure at any location across the width thereof after stretching, computing the cumulative mass values of said film structure across the width thereof before and after stretching, and adjusting the thickness of said film structure at any point across the width thereof before stretching responsive to deviation from a preselected value in thickness of said film structure after stretching corresponding to the cumulative mass value of said film struture before and after stretching.

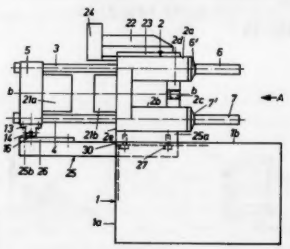


3,782,874

INJECTION MOLDING MACHINE

Karl Hehl, Siedlung 183, Lossburg/Wurtt, Germany

Filed Mar. 10, 1972, Ser. No. 233,472
Claims priority, application Germany, Mar. 15, 1971, P 21 12 311.5
Int. Cl. B29f 1/00
U.S. Cl. 425—190 5 Claims



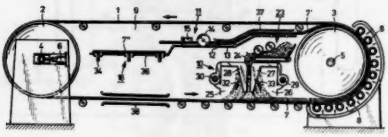
An injection molding machine including a horizontal mold clamping unit, a mold and a machine base. The mold clamping unit includes a cylinder carrying mold assembly, a movable mold carrier member and structure for connecting the cylinder carrying mold assembly and the carrier member. The machine base is provided with detachable fasteners and the cylinder carrying mold assembly is provided with detachable fasteners so that it can be selectively connected to the machine base either directly or in operative association with a mold mounting unit. The mold mounting unit also includes detachable fasteners and is arranged to be able to simultaneously constitute a support for the movable mold carrier member and a connecting unit for connecting the cylinder carrying mold assembly to the machine base by the mutual engagement of the detachable fasteners on the various members.

3,782,875

APPARATUS FOR THE CONTINUOUS MANUFACTURE OF CHIP BOARDS

Paul Olschewski, Springe/Deister, Germany, assignor to bison-werke Bahre and Greten GmbH and CoKG

Filed Jan. 4, 1972, Ser. No. 215,369
Claims priority, application Germany, Jan. 4, 1971, P 21 00 132.1
Int. Cl. B29j 5/02, 5/04
U.S. Cl. 425—223 17 Claims



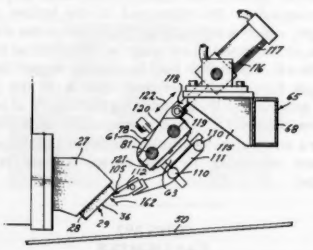
An apparatus for continuously manufacturing chip boards and the like by pressing particles mixed with binders between a pressing roller and an endless steel or steel mesh belt by calibrating rollers. Two spaced rollers are provided for the belt to travel around, one of these rollers serving as the pressing roller. These two rollers are relatively large in diameter and are relatively widely spaced so that a large manufacturing space is obtained inside of the belt path between the rollers. A forming station for supplying particles and binders to the belt, as well as a cutting station for cutting the pressed boards, and a transporting station for transporting the finished and cut boards from the belt area, are situated within the manufacturing space between the rollers. Alternatively, a coiling station for coiling very thin finished lengths of board could be provided in the manufacturing space.

3,782,876

EXTRUSION MACHINE FOR PRETZELS AND THE LIKE

Edwin I. Groff, West Reading, Pa., assignor to Reading Pretzel Machinery Co., West Reading, Pa.

Filed Dec. 30, 1971, Ser. No. 213,872
Int. Cl. A23g 5/02
U.S. Cl. 425—232 8 Claims



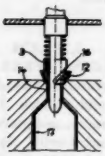
A machine for extruding dough including an extrusion head having a specifically configured outlet die, a cut-off mechanism mounted for back and forth movement across the die to sever extruded material into shorter lengths or slices, cleaning means for the cut-off mechanism, and a removal conveyor for receiving and removing the severed pieces.

3,782,877

APPARATUS FOR SEPARATING THE SURPLUS OF THERMOPLASTIC MATERIAL FROM THE NECK PORTIONS OF BLOW-MOLDED CONTAINERS

Gottfried Mehnert, Berlin, Germany, assignor to Bekum Maschinenfabriken GmbH, Berlin, Germany

Filed Apr. 13, 1971, Ser. No. 133,513
Claims priority, application Germany, Apr. 28, 1970, P 70 15 972.7; Dec. 9, 1970, P 20 60 586.1
Int. Cl. B29c 17/14
U.S. Cl. 425—292 17 Claims



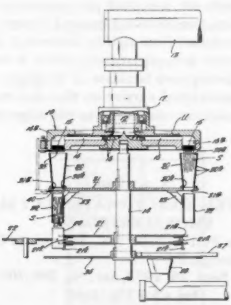
The funnel-shaped surplus of thermoplastic material which is partially separated from the neck portion of a container formed in the mold of a blow molding machine is held by a sleeve which is movable axially of and surrounds the blowing mandrel. Prior to separation of the neck portion of a freshly formed container from the calibrating end of the mandrel, the neck portion and the surplus material are subjected to an intensive cooling action and the sleeve is then moved angularly and/or axially of the mandrel, or vice versa, to effect full separation of the surplus material from the neck portion. The container is thereupon separated from the mandrel prior to separation of surplus material from the sleeve, and the surplus material is deflected laterally to be collected independently of the containers.

3,782,878

ROTARY EXTRUDER AND LOADER

James A. Hudson, Brooklawn, N.J., assignor to Campbell Soup Company, Camden, N.J.

Filed Mar. 14, 1972, Ser. No. 234,547
Int. Cl. A23l 1/16; A21c 9/02
U.S. Cl. 425—314 13 Claims



Apparatus is provided for continuously extruding elongated products through a rotary extruder head. For this purpose, a series of dies are mounted in the bottom of a rotary extruder head and there is provided means to continuously force the product through the dies. The product is cut from the dies and permitted to drop into a series of suitable receptacles advancing in spaced relation on a conveyor located below the extru-

sion dies. There is provided funnel means which rotates with the dies to guide the products into the receptacles. In one embodiment in which spaghetti is extruded, there is provided means to trim the extruded products to a predetermined length before they are cut and permitted to drop into the cans. In another embodiment in which noodles are extruded, a series of blades are provided at spaced intervals along the path of movement of the dies to sever the products sequentially during extrusion thereby to yield products of relatively short lengths. In each embodiment, a member underlies the dies and rotates therewith to accept extruded products in the absence of one or more cans, and a scraper removes the extruded products from the member.

3,782,879

MOLDING APPARATUS

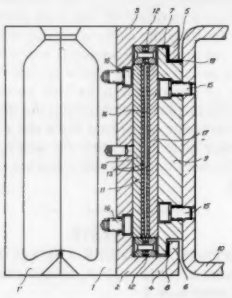
Reinhold Mnilk, Dortmund-Wickede; Manfred Kurreck, Bochum-Weitmar, and Ulrich Geltenpoth, Dortmund-Wickede, all of Germany, assignors to Holstein & Kappert Maschinenfabrik Phonix GmbH, Dortmund, Germany

Filed Sept. 13, 1971, Ser. No. 176,403

Claims priority, application Germany, June 9, 1971, P 21 28 561.0

Int. Cl. B29c *1/16*

U.S. Cl. 425—450 **3 Claims**



A molding apparatus for thermoplastic material has a mold including two relatively movable mold sections. One or both of the mold sections are mounted on carriers for movement relative to the other, and adjusting means in form of springs or in form of superimposed fluid-tightly connected plates defining with one another a compartment which is extensible by pressure fluid, is interposed between at least one of the mold sections and its associated carrier so that the mold sections can be adjusted relative to one another and aligned in parallelism.

3,782,880

CONTROL SYSTEM TO AUTOMATICALLY MAINTAIN A SMOKELESS FLARE

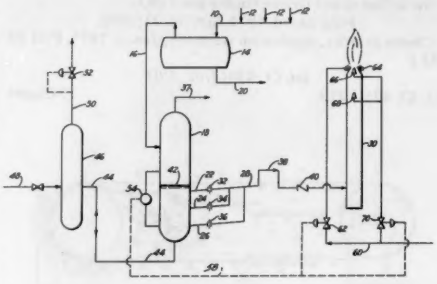
Elton C. Eubanks, Port Arthur, Tex., assignor to Gulf Oil Corporation, Pittsburgh, Pa.

Filed Sept. 20, 1972, Ser. No. 290,706

Int. Cl. F23j *15/00*

U.S. Cl. 431—4 **10 Claims**

Waste gases from refinery units are delivered into a vessel having a plurality of outlet lines connected into the vessel at different elevations. The outlet lines are connected into a waste gas flare line for delivery of waste gas to a smokeless flare. A sealing liquid in the vessel can be displaced from the vessel through a line opening from the bottom of the vessel to a sealing liquid reservoir. The level of sealing liquid in the vessel, which is dependent upon the rate waste gases are discharged through the outlet lines, produces a signal to control the rate of steam delivery to the flare to maintain a smokeless flare. As the rate of waste gas flow into the vessel increases, the sealing liquid level in the vessel is lowered to uncover successively lower outlet lines and allow increased rate of flow of waste gas to the flare.



3,782,881

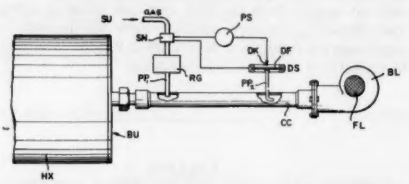
GAS BURNER PROTECTIVE APPARATUS

Hugh Aloysius Feeney, Gillette, N.J., assignor to American Standard Inc., New York, N.Y.

Continuation of Ser. No. 15,535, March 2, 1970, abandoned. This application Nov. 9, 1971, Ser. No. 197,189

Int. Cl. F23n *1/02*

U.S. Cl. 431—90 **16 Claims**



Covers a power gas burner supply system embodying apparatus for detecting and responding to any predetermined reduction in the volume of air supplied with the gas to the burner system. The detecting apparatus may include a hollow pipe one end of which senses the air flow which is transmitted to the burner system, and a pressure-actuated diaphragm switch is coupled to the other end of the hollow pipe. The diaphragm, which is normally deflected when the air supply is adequate, is subjected to a change in deflection as the volume of air falls off. The switch may be used to trigger the removal of the gas furnish to the burner system as the deflection changes sufficiently. By maintaining the supply of air above a predetermined level, the burner system is continuously maintained in a satisfactory operating condition and the production of carbon monoxide by the burner system is virtually eliminated.

3,782,882

GAS LIGHTER

Kenjiro Goto, Tokyo, Japan, assignor to Mansei Kogyo Kabushiki Kaishya, Kawaguchi-shi, Saitama, Japan

Filed Mar. 10, 1972, Ser. No. 233,589

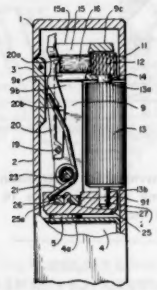
Claims priority, application Japan, Mar. 18, 1971, 46/18612; Mar. 16, 1971, 46/17777

Int. Cl. F23q *25/00*

U.S. Cl. 431—150 **14 Claims**

Head mechanism for a gas lighter including two devices secured by a single screw means and one of which includes a

knurled wheel, a rotor rotatably mounted thereon and adapted to rotate the knurled wheel, a flint stone, a flint housing passage for guiding the flint stone into engagement with the knurled wheel and a flint urging means for driving the flint stone toward the knurled wheel, the flint urging means rotating within the flint housing passage around a predetermined axle. The other device includes a valve operating means



adapted to control a conventional burner valve and a spring positioned on the screw means to apply a pressure upon the valve operating means. Also disclosed is a valve actuating means controlled by the valve operating means and including a pair of upper and lower members surrounding the burner valve and separated by a stopper associated with the upper member and a spring.

3,782,883

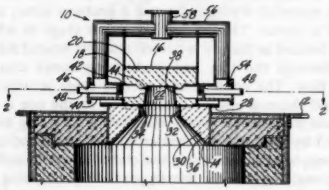
FLAT FLAME BURNER HAVING A LOW AIR TO GAS RATIO

John D. Nesbitt, Chicago, Ill.; Klaus H. Hemsath, Sylvania, Ohio, and Frank J. Vereecke, Palmyra, Mich., assignors to Midland-Ross Corporation, Cleveland, Ohio

Filed Apr. 20, 1972, Ser. No. 245,932

Int. Cl. F23m *9/00*

U.S. Cl. 431—185 **12 Claims**



A flat flame burner capable of sustaining combustion at a low air to gas ratio. The burner has a cup shaped combustion chamber with outwardly extending tapered walls leading from the combustion chamber. At the upstream end of the combustion chamber, generally tangential means is provided for introducing a mixture of gas into the combustion chamber. The geometry of the burner is such that virtually total reaction takes place within the combustion chamber and along the tapered walls.

3,782,884

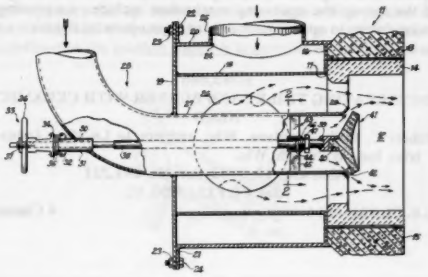
ACID GAS BURNER

Willis L. Shumaker, Independence, Mo., assignor to Standard Oil Company, Chicago, Ill.

Filed May 9, 1972, Ser. No. 251,660

Int. Cl. F23c *5/06*

U.S. Cl. 431—186 **9 Claims**



A burner for feeding acid (H_2S) gas to a combustion chamber of a thermal reactor contains a gas-feeding tube having a forward flared open end, that extends horizontally through a wall of the reactor into the chamber, and a gas diverter concentrically disposed in that open end to provide an annular space between the diverter and the flared open end of the tube. The diverter has a rearward portion with a frustoconical surface facing the inner surface of that flared end of the tube. The diverter is connected at its rear end, inside the tube, to one end of a shaft that extends rearwardly through the tube to an external location for its other end. The shaft adjacent that other end is connected to means to move the shaft longitudinally for adjustment of the dimension of the annular space between the diverter and the flared end of the tube. The burner further includes an intermediate support for the movable shaft. The intermediate support is mounted on the tube adjacent its flared end. The shaft is also supported adjacent its other end.

3,782,885

PIEZO ELECTRICALLY IGNITED LIGHTER

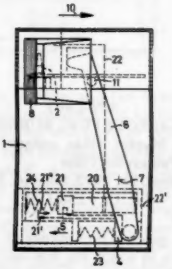
Peter Weissmann, Burg Farrnbach, Germany, assignor to Consul GmbH, Nurnberg, Germany

Filed Aug. 22, 1972, Ser. No. 282,771

Claims priority, application Switzerland, Aug. 27, 1971, 12623/71

Int. Cl. F23q *3/01*

U.S. Cl. 431—255 **5 Claims**



The lighter housing encloses therein a piezo electric crystal and an impact hammer which, when the crystal is struck,

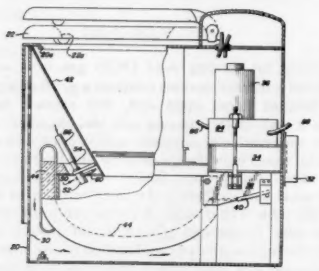
causes the crystal to generate an electrical pulse which provides the spark to ignite the lighter. The impact hammer is operated by a pivoted lever, engaged on one side by a manually operable slider, the other side engaging a striker mechanism which compresses a spring which, when suitably compressed, then releases the impact hammer to strike the crystal. The pivoted two-arm lever has a longer arm engaged by the operating slider, to provide for high compressive force of the spring; the operating mechanism includes a camming arrangement to open a gas valve for a gas operated lighter.

3,782,886

INCINERATING TOILET AND BURNER WITH CERAMIC HEAD

Robert C. Helke, Fontana, Wis., assignor to La Mere Industries, Inc., Walworth, Wis.

Filed Aug. 17, 1972, Ser. No. 281,321
Int. Cl. F23q *3/00*
U.S. Cl. 431—264 **4 Claims**



A fuel burner in which the flame supporting portion is a ceramic nozzle tube attached to an electrically conductive supply tube which supplies fuel through one end of the ceramic tube to support a flame emitting from the other end of the ceramic tube. The ceramic tube has first and second transverse electrodes projecting generally along diameters of the ceramic tube with the electrodes at approximately right angles to each other and spaced axially in the tube from each other to provide a spark gap therebetween. One of the electrodes extends axially on the outer surface of the ceramic tube to a hook end which projects inwardly through a bore in the fuel supply tube for securing the ceramic tube to the fuel supply tube. The fuel supply tube is grounded to ground the electrode. The other electrode is connected to a high voltage source to produce a spark across the gap for igniting a fuel-air mixture entering the ceramic tube from the fuel supply tube. An incinerating toilet utilizing the ceramic head burner is also provided.

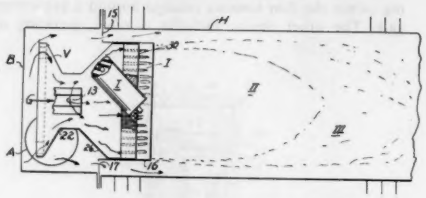
3,782,887

GASEOUS FUEL BURNER

Richard J. Brown, Mentor, Ohio, assignor to Tri-Men Manufacturing, Inc., Painesville, Ohio

Filed Sept. 28, 1972, Ser. No. 293,050
Int. Cl. F23d *15/02*
U.S. Cl. 431—353 **9 Claims**

A high capacity gaseous fuel burner of relatively short longitudinal dimension in which the fuel and combustion air are supplied at superatmospheric pressure and mixed in a widely flaring venturi section with the fuel admitted to the venturi throat in cross current fashion to the air flow and the mixture burned with a noiseless flame over a large area from a plate having numerous deep ports and located proximate the downstream mouth of the venturi. Means are also provided for adjusting the primary air-gas ratio entering the venturi and



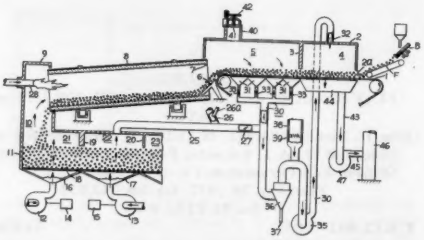
further means are provided for distributing secondary air to the base of the flame approximately in the plane of the downstream mouth of the venturi.

3,782,888

METHOD AND APPARATUS FOR HEAT TREATING WITH HEAT RECUPERATION FROM MATERIAL COOLING AND AUXILIARY HEAT DURING STARTUP

Robert F. Cnare, Pewaukee, Wis., assignor to Allis-Chalmers Corporation, Milwaukee, Wis.

Filed Oct. 4, 1972, Ser. No. 294,879
Int. Cl. F27b *7/02*
U.S. Cl. 432—14 **12 Claims**



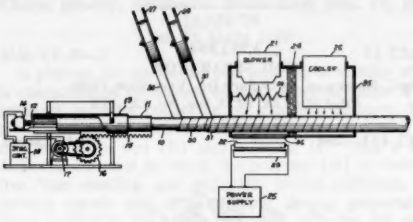
A method and apparatus is disclosed for heat treating mineral ore materials. The apparatus includes, in material series flow arrangement, a traveling grate preheater having at least one material drying zone and a preburn zone, a rotary kiln, and a cooler. The cooler has a first stage in which air becomes heated as the ore is cooled and this heated air is conducted through the kiln and preburning zones counter to material flow. The cooler has a second stage in which air is heated and thermal energy recuperated as the ore is further cooled and this second cooler stage air after being heated is conducted by a bypass conduit around the kiln and preburn zone to supply heat for drying the materials. An auxiliary air heater is associated with this bypass and according to the method disclosed, during start-up operation and before hot material arrives in the second stage of the cooler, the air heater is operated to heat the air conducted from the second stage of the cooler, for drying the material until hot material does arrive in the second stage of the cooler and thereafter heat transferred from the hot material to the air passing through the material in the second stage of the cooler, is utilized for drying the material. The disclosed apparatus operated according to the disclosed method, achieves improved fuel economy, more effective control of the drying or dehydrating operation, and such operation is achieved with a smaller kiln than heretofore required according to teachings of the prior art.

3,782,889

APPARATUS FOR RAPID CURING OF RESINOUS MATERIALS

C. Richard Panico, Medford, Mass., assignor to Xenon Corporation, Medford, Mass.

Filed Sept. 9, 1971, Ser. No. 178,936
Int. Cl. F27b 9/28
U.S. Cl. 432—59 **9 Claims**



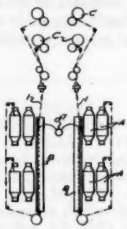
Apparatus providing in sequence a heat source for directing a flow of air under pressure at a temperature in the range of 250° to 800°C, a blower to direct a flow of cool air and a drive mechanism to produce motion between the heat source and blower relative to a resinous material to be cured at a speed whereby the material reaches a temperature of at least 170°C within a time interval of less than one minute and is then cooled.

3,782,890

FUME EXTRACTORS FOR THE HEATERS OF TEXTILE PROCESSING MACHINES

Frederick Hugh Howorth, Chorley, England, assignor to Howorth Air Conditioning Limited, Farnworth, Bolton Lancaster County, England

Filed June 7, 1972, Ser. No. 260,434
Claims priority, application Great Britain, June 8, 1971, 19,343/71
Int. Cl. F27b 9/28
U.S. Cl. 432—59 **6 Claims**



A fume extractor unit for the heaters of textile yarn or filament processing machines comprising a sealed hood or door for closing a recess in a heater container, the door being formed with a longitudinal chamber connected through ports or holes to a compartment in the heater container through which the yarn or filament passes and to exhaust ports in communication with an exhaust suction pipe or duct into which the fumes from the yarns or filaments are withdrawn.

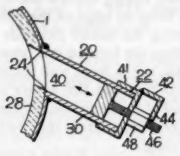
3,782,891

EXTERNAL MATERIAL LIFTERS FOR ROTARY KILNS AND THE LIKE

Charles E. Dandois, Milwaukee, Wis., assignor to Allis-Chalmers Corporation, Milwaukee, Wis.

Filed Nov. 28, 1972, Ser. No. 310,161
Int. Cl. F27b 7/14
U.S. Cl. 432—118 **2 Claims**

An apparatus is disclosed for heating, drying or otherwise treating a raw material or a slury of raw material that is lifted and showered back down to a bed of the material while a treating gas passes through the showering material. The apparatus includes a tubular shell mounted for rotation about a slightly inclined central axis. A plurality of material lifting buckets are spaced around and attached to the outer circumference of the rotary shell to rotate with the shell. Each bucket has side wall means with a terminal lip attached to the shell in alignment with a radial opening through the shell, and an end wall opposite the lip. Reference is made to a first portion of the bucket wall means and lip. The first portion of each bucket is defined as the portion which is lowermost on the upturning



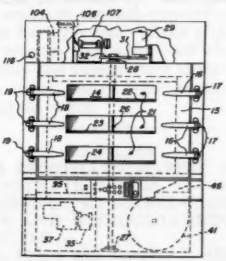
side of the shell and uppermost on the downturning side of the shell. Each bucket is attached to the shell with the defined first portion of the bucket defining an acute angle with the shell and providing a material retaining pocket between the first portion and the end wall which when the bucket is on the upturning side of the shell, locates the pocket below the lip until the bucket is carried a substantial distance above a horizontal plane through the central axis of the shell. The smaller the defined acute angle the higher the bucket will travel before spilling and dumping the last of the material in the pocket to shower back into the shell.

3,782,892

OVENS

David E. Johnson, Minneapolis, and Terrance E. Polsfuss, Clear Lake, both of Minn., assignors to Despatch Industries, Inc., Minneapolis, Minn.

Filed May 19, 1972, Ser. No. 255,226
Int. Cl. F26b 9/24
U.S. Cl. 432—132 **21 Claims**



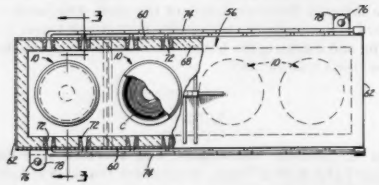
An improved oven includes an oven chamber, at least one baking shelf in the oven chamber for supporting products to be baked, and at least one wall member defining a shelf-heating compartment or duct extending through the oven chamber below the baking shelf. A supply conduit from a heater chamber outside the oven chamber delivers heated gaseous fluid to each shelf-heating compartment, and a return conduit connects each shelf-heating compartment to the heater chamber for recirculation of fluids with the aid of a heating blower to maintain the desired surface temperature for each baking shelf.

A preferred oven includes a plurality of rotary baking shelves supported in an oven chamber for rotation on a vertical axis. A transverse horizontal shelf wall extends across the oven chamber circumferentially around each baking shelf, and the shelf wall and rotary baking shelf cooperate to provide

a substantially imperforate partition between a baking compartment above each rotary baking shelf and a shelf-heating compartment below each baking shelf.

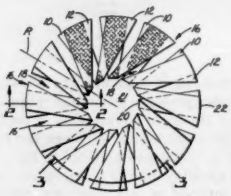
The oven further includes an unobstructed delivery opening for each baking compartment for loading and removal of products at any time during continuous operation of the oven. Additional supply connections, conduits, adjustable valve members and an auxiliary blower are disclosed for selective delivery of some heated gaseous fluids from the heater chamber to each baking compartment, for selective adjustment of the relative rates of delivery of the heated fluid to the respective baking and shelf-heating compartments, for adjustably venting each baking compartment to the outside air, for removal of air from an edge of the delivery opening, and for adjustably venting the heater chamber to the outside air. The delivery openings are located in a removable vertical section of the side wall, e.g. a front wall section, and the supply and return conduits between the heater chamber and oven chamber are located at opposite sides of the oven chamber for circulation of heated fluids across the oven generally parallel to the delivery openings.

3,782,893
MULTIPLE PEDESTAL FURNACE INSTALLATION
Calvin C. Blackman, 5419 Park Dr., Vermilion, Ohio
Filed May 22, 1972, Ser. No. 255,785
Int. Cl. F27b *11/00*
U.S. Cl. 432—206 **9 Claims**



A furnace structure and multiple pedestal base installation for heat treating stacked coils of strip material. The pedestals are insulation lined to support the coils, and are supported above the working floor. An elastimeric seal is provided around each pedestal for the reception of a bell inner cover. The furnace structure has support means defining a furnace which has insulation lining substantially totally enclosing the top and sides thereof and defining the bottom with openings therein for reception of the bell covers therethrough. Heating means are carried by the interior of the furnace, but the bottom insulation protects the seals and bottom of the bell covers cooperating with the seals from direct radiation therefrom.

3,782,894
COIL SEPARATOR
Calvin C. Blackman, 5419 Park Dr., Vermilion, Ohio
Filed Mar. 16, 1972, Ser. No. 235,128
Int. Cl. F27b *21/04*
U.S. Cl. 432—260 **10 Claims**



A coil spacer adapted to be interposed between a pair of stacked coils in an annealing furnace. The spacer has two superimposed contiguous layers of wedge shaped plates arranged to define an annulus with a central opening. In one form the plates of one layer are radially extending defining radially extending channels and the plates of the other layer are skewed with respect to the radius to defining skewed channels intersecting the channels defined by the other layer. In another form the plates in each layer are skewed radially in opposite senses. In this form the plates are arranged so that their outer edges are rotatably offset to form a continuous outer surface and preferably the inner ends also are offset to form a continuous inner peripheral surface.

CHEMICAL

3,782,895

ELECTROSTATIC DYEING WITH MICROCAPSULES CONTAINING DYES IN LIQUIDS OF HIGH DIELECTRIC CONSTANT

Hendrik Goorhuis, Binningen, Basel-Land, Switzerland, assignor to Sandoz Ltd., Basel, Switzerland

No Drawing. Filed Nov. 16, 1971, Ser. No. 199,376
Claims priority, application Switzerland, Dec. 15, 1970, 18,558/70
Int. Cl. G03g *3/00*
U.S. Cl. 8—2 **11 Claims**

A process for the dyeing and printing of textiles which is characterized by the use of dyeing preparations in the form of particles consisting of a highly resistive, high molecular weight polymer (A) as carrier, in which are encapsulated a dye (B) and a liquid (C) with a high dielectric constant in which the polymer (A) is virtually free from swelling, and optionally known assistants, dispersing agents and solvents, said dyeing preparations being applied to the textile substrate with the aid of an electrostatic field and then fixed.

3,782,896

SUBLIMATION TRANSFERRING HYDROXY OR AMINO-DIALKYLAMINO-DICYANOSTYRYL DYE AND DIISOCYANATE FIXATION OF DYED TEXTILE AND TRANSFER SHEETS THEREFOR

Raymond Defago, Riehen, Hans-Joerg Angliker, Basel, Herbert Holzrichter, Muri, Werner Kneubuehler, Binningen, and Richard Peter, Basel, Switzerland, assignors to Ciba-Geigy AG, Basel, Switzerland

No Drawing. Filed Apr. 19, 1972, Ser. No. 245,648
Claims priority, application Switzerland, Apr. 26, 1971, 6,069/71
Int. Cl. D06p *5/04*
U.S. Cl. 8—2.5 **26 Claims**

The invention relates to a process for the manufacture of prints which are fast to wet processings and sublimation on textile or non-textile sheets by means of the transfer printing process, wherein dyestuffs containing mercapto, hydroxyl and/or amino groups and applied to sheets by means of the transfer printing process are fixed by the action of isocyanates or masked isocyanates, which are applied to the sheets before, during, or after the dyestuff transfer.

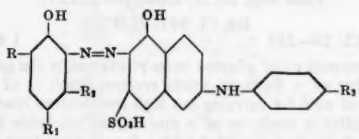
3,782,897

DYEING POLYAMIDE FIBERS WITH CHROMIUM-DONATING MONOAZO DYESTUFFS

Jacky Dore, Basel, Switzerland, assignor to Sandoz Ltd., Basel, Switzerland

No Drawing. Filed May 18, 1971, Ser. No. 144,620
Claims priority, application Switzerland, June 2, 1970, 8,228/70; Jan. 22, 1971, 985/71
Int. Cl. D06p *3/14*
U.S. Cl. 8—43 **9 Claims**

Process for the dyeing of natural and synthetic polyamide fibres with a complex (obtained or the fibre) of 2 moles of a monoazo compound of formula



(I)

where

R and R_1 each stands for halogen,
R_2 is hydrogen or halogen,
R_3 is halogen or $—OR_4$, and
R_4 is an alkyl radical which may be substituted,

and treated with 1 and 2 moles of a compound donating chromium.

3,782,898

TEMPORARY SOIL RELEASE RESINS APPLIED TO FABRICS IN LAUNDERING

Harry Creston Mandell, Jr., Wayne, Pa., assignor to Pennwalt Corporation, Philadelphia, Pa.

No Drawing. Filed Aug. 12, 1971, Ser. No. 171,362
Int. Cl. B08b *3/00*
U.S. Cl. 8—137 **12 Claims**

A laundering process and novel laundering composition used to impart temporary soil release properties to textile fabrics by impregnating the fabrics with an acrylic resin in the final step of a laundering operation, usually in the sour operation. The fabrics are then dried leaving a residue of the resin on the fabrics which helps remove after acquired stains. The resin impregnation can be combined with fabric finishing treatments such as blueing, sizing, brightening and softening. The process is repeated with each subsequent laundering of the fabrics to obtain optimum soil release and stain removal.

The laundering compositions comprise water, acrylic resin, and laundry sour or other fabric finishing agent.

3,782,899

TREATMENT OF SHEET MATERIALS

David Winston Crosby, Pontypool, England, assignor to Imperial Chemical Industries Limited, London, England

No Drawing. Filed Aug. 31, 1970, Ser. No. 68,482
Claims priority, application Great Britain, Sept. 2, 1969, 43,328/69
Int. Cl. D06c *1/00*
U.S. Cl. 8—149.2 **4 Claims**

A process and apparatus for the uniform physical treatment of a sheet material with a gaseous fluid, which under conventional treatment conditions causes the sheet material to undergo undesired chemical changes, the apparatus comprising means of supply of said gaseous fluid at a pressure of at least 0.35 kg. cm.$^{-2}$ gauge, means for reducing said pressure to or about atmospheric pressure to an outlet slit orifice of the said pressure reducing means, said slit orifice having a width of not greater than 8 cm., said pressure reducing means provided with means to distribute uniformly said gaseous fluid to the said slit orifice, and means for forwarding said sheet material at a constant rate across said slit orifice.

3,782,900

GAS-LIQUID CHROMATOGRAPHIC DETERMINATION OF NITRATE ESTERS, STABILIZERS AND PLASTICIZERS IN NITROCELLULOSE-BASE PROPELLANTS AND NITROGLYCERINE IN PHARMACEUTICALS

Hiram W. H. Dykes and Bernard J. Alley, Huntsville, Ala., assignors to the United States of America as represented by the Secretary of the Army

Filed May 4, 1972, Ser. No. 250,253
Int. Cl. G01m *31/08*
U.S. Cl. 23—230 R **30 Claims**

A gas-liquid chromatographic method for determining nitrate esters as well as stabilizers and plasticizers in a wide variety of nitrocellulose-base propellants. The method is also applicable to the determination of nitroglycerine in pharmaceutical preparations. The method employs chromatographic columns having a silicone stationary phase selected from nonpolar dimethylsilicone, polar trifluoropropyl silicone, and highly polar cyanopropyl phenyl silicone. The solid support of the columns is comprised of a

flux-calcined, diatomaceous earth treated with a silane. The method of this invention utilizes columns that preclude on-column decomposition which is essential for determination of nitrate esters, as well as the plasticizers and stabilizers, in all types of nitrocellulose-base propellants. The method employs an electronic digital integrator which provides for sensitive detection of the nitrate ester with a precise measurement of its peak area. The method employs semimicro calibration and extraction procedures which substantially reduce analysis time. The extraction procedure utilizes an ultrasonic cleaner which effectively reduces the extraction time as compared to prior art extraction procedures.

3,782,901

APPARATUS FOR THE SEMICONTINUOUS MANUFACTURE OF A PHOSPHORIC ACID ESTER OF A POLYHYDRIC ALCOHOL

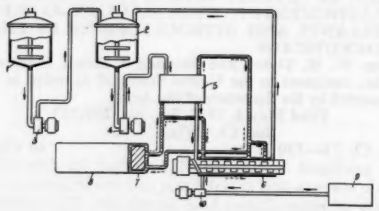
John Whetstone, Woodlea, Scotland, assignor to Imperial Chemical Industries Limited, London, England

Filed Sept. 7, 1971, Ser. No. 177,980

Claims priority, application Great Britain, Sept. 7, 1970, 42,763/70

Int. Cl. B01j *1/00;* **C07c** *69/20;* **C07f** *9/02*

U.S. Cl. 23—260 **2 Claims**



Calcium sucrose phosphate is manufactured in a unit operating on a semi-continuous principle by circulating a lime-sugar slurry continuously at a high rate from a holding vessel through a heat exchanger as precooler, a cooled scraped-wall reactor into which phosphorus oxychloride is injected and then back to the holding vessel. The serious problem of gel formation of the reaction mixture on cooling surfaces is obviated by this circulation technique.

3,782,902

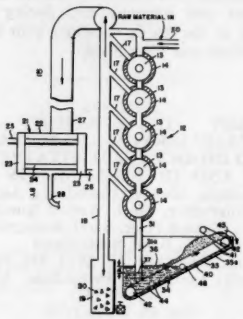
APPARATUS FOR RENDERING

Ditlev P. Madsen, 27 N. Woodland Trail, Palos Park, Ill. 60464, and John H. Pikel, 5013 W. 101st St., Oaklawn, Ill. 60453

Original application Dec. 16, 1968, Ser. No. 784,100, now Patent No. 3,655,702. Divided and this application Oct. 7, 1971, Ser. No. 192,724

Int. Cl. C11b *1/12;* **B01d** *43/00*

U.S. Cl. 23—280 **11 Claims**



There is provided an improved method and apparatus for the continuous rendering of fatty material, wherein the material to be rendered is first passed through a known type of rendering evaporator for separating fat and cracklings from the raw material. The material is fed into a substantially airfree state. A controlled pressure is maintained in the rendering evaporator to aid in the removal of moisture. The treated material is discharged in a continuous process from the rendering evaporator through a suitable discharge outlet which extends below the liquid level in a holding tank to provide an airlock. The airlock is provided with the discharge outlet for preventing the entry of air into the rendering evaporator through the discharge outlet.

3,782,903

SUPPORT PILLAR FOR FLUID BED GRID

Walter W. Kramer, Allentown, Pa., assignor to Fuller Company, Catasauqua, Pa.

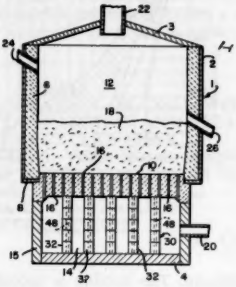
Filed Aug. 16, 1971, Ser. No. 172,177

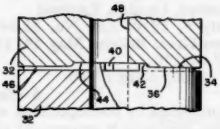
Int. Cl. B01j *9/18*

U.S. Cl. 23—284 **1 Claim**

A support pillar adapted to be positioned in the plenum chamber of a fluidized solids reactor which is of large size and used for carrying out high temperature reactions. The pillar is made up of a plurality of stackable blocks each of which is provided with a longitudinal bore. Each block has a plurality of recesses on its top surface extending from the longitudinal bore to the outer periphery of the block. The top surface of the block is provided with a raised portion and the bottom surface is provided with

a recess adapted to receive the raised portion on the top surface of an adjacent block when the blocks are stacked. When the blocks are stacked, they provide flow passages which provide communication between the plenum chamber and the inside of the column to thereby equalize the temperature throughout the column. The longitudinal bore through the column communicates with passages in the grid of the reactor.





3,782,904

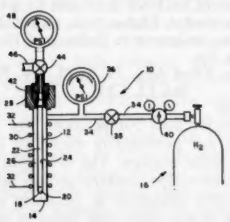
COMPACT HYDROGENATOR

James C. Fletcher, Administrator of the National Aeronautics and Space Administration, with respect to an invention of Peter G. Simmonds, 5200 Palm Drive, La Canada, Calif. 91011

Filed Oct. 7, 1971, Ser. No. 187,365

Int. Cl. B01j *9/04;* **C07f** *1/00*

U.S. Cl. 23—284 **2 Claims**



A hydrogenating apparatus which includes a reaction chamber of a material such as a palladium alloy that is selectively permeable to atomic hydrogen and catalytically active to hydrogenating reaction and which contains a reactant that is to be hydrogenated, a shell surrounding the chamber and supplied with hydrogen, and a heating coil for heating the shell to thereby heat the hydrogen therein before it passes through the chamber while the reactant remains therein before it passes through the chamber wall. In one device, hydrogen is pumped out of the reaction chamber while the reactant remains therein to remove molecular hydrogen so that more atomic hydrogen can pass through the chamber walls. In another device, the reactant is pumped through the reaction chamber, and hydrogen is removed from the material leaving the chamber, and the reactant is again cycled through the chamber.

3,782,905

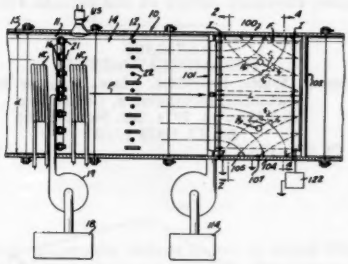
ELECTROSTATIC PRECIPITATING APPARATUS AND METHOD

A. Ben Huang, 3134 Woodrow Way NE. 30319, and Arnold L. Ducoffe, 3544 Paces Ferry Road NW. 30327, both of Atlanta, Ga.

Filed May 1, 1972, Ser. No. 249,167

Int. Cl. B03c *3/74, 3/88*

U.S. Cl. 23—284 **26 Claims**



Electrostatic precipitating apparatus and method wherein the apparatus includes a tubular duct through which a gas stream is passed, a converter within the duct for converting gaseous pollutants into entrained particles, a charging means within the duct downstream of the converter for imposing an electrical charge of predetermined polarity on the entrained particles, and a separating section within the duct downstream of the charging means for separating the entrained electrically charged particles from the gas stream. One embodiment of the separating section includes an entry grid intersecting the path of gas flow with a charge thereon of opposite polarity with respect to the charge on the particles, an exit grid downstream of the entry grid with a charge thereon of the same polarity as the charge on the particles, and that portion of the duct wall between the grids having a charge thereon of opposite polarity to the charge on the particles. Another embodiment of the separating section adds additional exit grids to the above embodiment spaced downstream from the first exit grid and from each other with each of the additional exit grids having a charge thereon of the same polarity as that on the particles but with a greater potential than the next adjacent upstream exit grid, and with the duct wall between each adjacent pair of exit grids having a charge thereon of opposite polarity to the charge on the particles.

The method is that carried out by the above apparatus.

3,782,906

PROCESS FOR PREPARATION OF AGGLOMERATED HYDRATED ALKALI METAL SILICATE GLASS PARTICLES

Richard H. Pierce, Broomall, Pa., assignor to Philadelphia Quartz Company, Philadelphia, Pa.

No Drawing. Filed Nov. 16, 1971, Ser. No. 199,373
Int. Cl. B01f *3/06*; C01b *33/32*; C01d *11/00*
U.S. Cl. 23—313 5 Claims

Readily soluble, free-flowing hydrated alkali metal silicate glass particles are prepared by feeding fine particles of anhydrous glass into a fluid bed and using steam to expand the bed. The steam hydrates the glass particles and agglomeration takes place.

3,782,907

IRIDESCENT CHROMIUM PLATED ARTICLE

Hyman Chessin, 7146 Heather Heath Lane, Birmingham, Mich. 48010, and Robert Francis Gempel, 71 W. Hancock, Apt. 3, Detroit, Mich. 48201

No Drawing. Original application Feb. 6, 1969, Ser. No. 797,258, now Patent No. 3,657,079. Divided and this application May 6, 1971, Ser. No. 141,044
Int. Cl. B32b *15/00*
U.S. Cl. 29—194 3 Claims

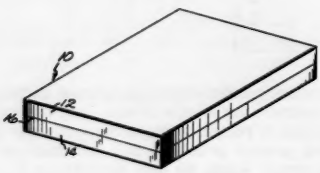
This invention relates to novel compositions and to a process of preparing an iridescent chromium plated article which comprises passing current from an anode to a cathode through an aqueous chromium plating solution which contains at least one chromium compound providing chromium metal ions for electroplating chromium and a hexavalent molybdenum compound to produce an iridescent chromium surface on said cathodic article.

3,782,908

THERMOSTAT METAL

Sheldon S. White, Brookline, Mass., assignor to Texas Instruments Incorporated, Dallas, Tex.

Filed Nov. 30, 1971, Ser. No. 203,266
Int. Cl. B32b *15/00*
U.S. Cl. 29—195.5 1 Claim



A composite thermostat metal is shown to comprise a layer of a selected aluminum alloy of relatively high coefficient of thermal expansion which is in a condition of temper providing the alloy with a yield strength of at least about 30,000 pounds per square inch at temperatures up to about 350° F., the layer of aluminum alloy being metallurgically bonded to a layer of metal of relatively low coefficient of thermal expansion.

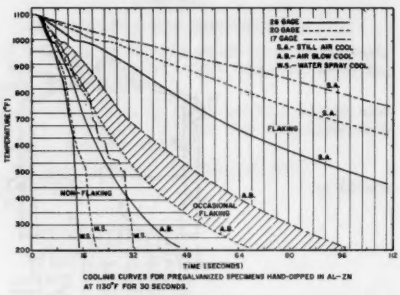
3,782,909

CORROSION RESISTANT ALUMINUM-ZINC COATING AND METHOD OF MAKING

Harold J. Cleary, Coopersburg, and James B. Horton and George F. Melloy, Bethlehem, Pa., assignors to Bethlehem Steel Corporation

Filed Feb. 11, 1972, Ser. No. 225,407
Int. Cl. B32b *15/00*
U.S. Cl. 29—196.2 4 Claims

Aluminum-zinc coated ferrous products which are particularly resistant to corrosive flaking such as may occur in extremely corrosive environments are provided by accelerated cooling of the coating on the product as it emerges from a coating bath containing molten zinc and aluminum. The cooling is accomplished at a minimum rate of cooling which will prevent later corrosion flaking of the coating.



COOLING CURVES FOR PREGALVANIZED SPECIMENS HAND-DIPPED IN AL-ZN AT 1130°F FOR 30 SECONDS.

3,782,910

PRODUCTION OF WAX HEATERS

Edward Barnes, Speldhurst, England, assignor to BP Chemicals Limited, London, England

No Drawing. Filed July 9, 1970, Ser. No. 53,647
Claims priority, application Great Britain, May 29, 1970, 37,446/70
Int. Cl. C10l *11/00*; A01g *13/06*
U.S. Cl. 44—40 5 Claims

Wax filled heaters are produced by homogenizing solid slack wax and filling a container with homogenized slack wax.

3,782,911

HIGH OCTANE GASOLINE COMPONENTS

David M. Hoffman, Wilmington, Del., assignor to Sun Research and Development Co., Philadelphia, Pa.

No Drawing. Filed Oct. 26, 1971, Ser. No. 192,328
Int. Cl. C10l *1/22*
U.S. Cl. 44—63 3 Claims

Additives for increasing the octane rating of gasoline may be obtained from C_{1-6} aldehydes or C_{2-6} ketones by converting them into higher molecular weight unsaturated carbonyl compounds followed by partial isomerization of the double bond and/or partial dehydrocyclization to form a furan ring. These steps provide a mixture of compounds which need not be separated into their pure components and which possess a higher BVON than the starting material.

3,782,912

DETERGENT MOTOR FUEL

Warren H. Machleder, Elkins Park, and Robert R. Kuhn, Lansdale, Pa., assignors to Rohm and Haas Company, Philadelphia, Pa.

No Drawing. Filed Aug. 11, 1972, Ser. No. 279,891
Int. Cl. C10l *1/18*
U.S. Cl. 44—66 17 Claims

Detergent motor fuel compositions are disclosed and claimed which are particularly useful in spark-ignition, internal combustion engines. The detergent compositions of the present invention contain certain additives which either substantially eliminate or maintain at a low level deposits which would otherwise form in the carburetor and in the intake valves and ports. Such carburetor and intake system deposits are to be avoided since they tend to restrict the flow of air through the carburetor especially at idle and at low speeds and/or cause improper valve

closing and sluggish valve action. These conditions produce rough engine idling, stalling and can also result in excessive hydrocarbon and carbon monoxide exhaust emissions.

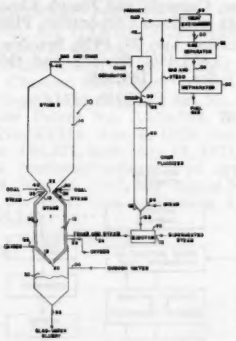
A suitable detergent composition comprises the combination of (1) a tertiary alkyl branched chain primary amine having a total of about 6 to 24 carbon atoms, (2) a surface active ammonium carboxylate salt-ethoxylated alkyl phenol ester of a trimer or dimer hydrocarbon acid; and (3) a hydrocarbon-soluble polybutene having a number average molecular weight of about 700 to 3000.

3,782,913

TWO-STAGE GASIFICATION OF COAL WITH FORCED REACTANT MIXING AND STEAM TREATMENT OF RECYCLED CHAR

Ernest E. Donath, St. Croix, Virgin Islands, assignor to the United States of America as represented by the Secretary of the Interior

Filed Mar. 23, 1972, Ser. No. 237,360
Int. Cl. C10j *3/00*
U.S. Cl. 48—202 **13 Claims**



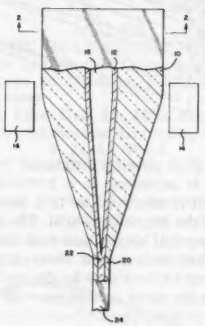
A process for the two-stage gasification of coal to produce methane-rich fuel gas. In the first stage, recycled processed char passes upwardly while reacting with steam and oxygen to yield a first stage synthesis gas containing hydrogen and oxides of carbon. In the second stage, the synthesis gas passes upwardly with coal and steam which react to yield partially gasified char entrained in a second stage product gas containing methane, hydrogen and oxides of carbon. The product gas from the second stage is separated from the char and is purified by conversion and removal of carbon oxides, hydrogen sulfide and other impurities, and the purified second stage product gas is methanated to produce the desired fuel gas. Char separated from the second stage product gas is passed through a fluidized bed and scrubbed with steam to remove product gas and other volatile materials which are carried by the scrubbing steam to the second stage product gas carried to purification. The scrubbed recycle char is carried by steam at high pressure and returned to the first stage. Agglomeration of coal in the second stage is prevented by the rapid heating of the coal to a temperature above its range of plasticity by mixing it with the hot products from the first stage. In the first stage the ratio of char and steam to oxygen is selected to obtain a reaction temperature above the ash melting point. The pressure in each stage exceeds 500 p.s.i.g. The second stage temperature exceeds 1500° F. and the first stage temperature exceeds 2200° F. Gas velocities in both stages are maintained between 2 and 12 feet per second while the residence time of solids in the first stage is from one-half to five seconds and, in the second stage, from five to fifteen seconds. A mixing stage between the first and second stages provides a restricted area for the injection of coal and steam into the upwardly flowing synthesis gas to separate solids and gases entering the second stage from the first stage and to assure rapid mixing and reaction of the reactants of both stages. Slag is removed from the lower end of the first stage for quenching and disposal through a slag removal port of small cross sectional area compared to the cross sectional area of the first stage. This assures residence and reaction time of the char in the first stage sufficient for its gasification with steam and oxygen at temperatures above the ash melting point. The relatively small area of the slag removal port permits controlled removal of molten slag while restricting the gravitation of char to the slag quenching stage.

3,782,914

HEAT TREATING OPTICAL WAVEGUIDES FOR OH ION REMOVAL

Robert David De Luca, Big Flats, Donald Bruce Keck, Corning, and Robert Distler Maurer, Painted Post, N.Y., assignors to Corning Glass Works, Corning, N.Y.

Filed Mar. 30, 1972, Ser. No. 239,747
Int. Cl. C03c *15/00, 25/02*
U.S. Cl. 65—3 **9 Claims**



Optical waveguides include a core of doped SiO_2 and a cladding of pure SiO_2 or doped SiO_2. The dopant, which is an oxide of a multivalent element, becomes chemically reduced during fabrication which usually includes heating the waveguide so that it can be drawn. For example, titanium dioxide, a commonly used dopant, has Ti^{+4} ions which are reduced to Ti^{+3} ions during the fabrication of the waveguides. These reduced ions increase the attenuation of the waveguide. For example, reduced titanium dioxide is brown. It absorbs light in the blue region and the amount of Ti^{+3} ions in the glass must be quite low in order to get the desired waveguide transmission properties. The reduced multivalent element ion attenuation is minimized by heat treating the waveguide fiber at temperatures in the range of approximately 800 to 1,000° C. for times of approximately six hours or less. The reduced multivalent ion is oxidized with hydroxyl ions deliberately retained in the glass and which serve as the oxidizing agent.

3,782,915

SURFACE-DEACTIVATED POROUS GLASS

Augustus M. Filbert, Corning, and Michael L. Hair, Webster, N.Y., assignors to Corning Glass Works, Corning, N.Y.

Filed Dec. 27, 1971, Ser. No. 212,009
Int. Cl. C03c *15/00*
U.S. Cl. 65—30 **7 Claims**

Porous glass bodies essentially free of surface Lewis acid sites are prepared by exposing the bodies to NH_3 or

steam at glass body temperatures of 800°–1000° C. The treated glass bodies are especially useful for applications in which the surface activity attributable to Lewis acid sites is desirably avoided (e.g., as chromatographic support or separation media).

3,782,916

PRODUCTION OF TOUGHENED AND BENT GLASS SHEETS

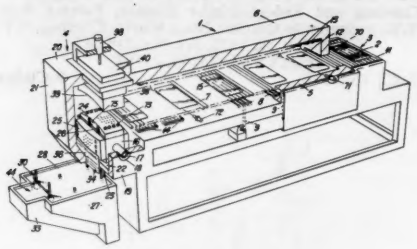
John Ernest Powell, Hopwood, Birmingham, and Peter Henry Richards, Kenilworth, England, assignors to Triplex Safety Glass Company Limited, London, England

Filed Sept. 11, 1972, Ser. No. 288,178

Claims priority, application Great Britain, Sept. 13, 1971, 42,561/71

Int. Cl. C03b *27/00*

U.S. Cl. 65—104 **19 Claims**



A toughened glass sheet is produced by a method in which the glass is advanced in a horizontal disposition and is heated as it is advanced on to a horizontal support surface on which the hot sheet is held. The support surface is rotated to a vertical disposition and the sheet is then released from that surface and lowered into a chilling liquid. The support surface may be the surface of a bending die on which the sheet is bent prior to toughening by quenching in the chilling liquid.

3,782,917

CYCLOPENTADIENYL(GROUP IV–B METAL)HYDROCARBON-SULFINATES AND -SULFONATES AS AGENTS FOR INCREASING CROP YIELDS

Joseph J. Mrowca, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

No Drawing. Continuation-in-part of application Ser. No. 75,694, Sept. 25, 1970, now Patent No. 3,728,365. This application Apr. 16, 1973, Ser. No. 351,624

Int. Cl. A01n *9/00*

U.S. Cl. 71—97 **11 Claims**

Novel sulfinato and sulfonato derivatives of cyclopentadienyl-titanium and -zirconium compounds are useful to increase crop yields.

3,782,918

CARBOXANILIDES AS HERBICIDES

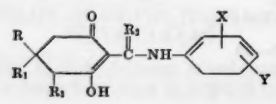
Bryant Leonidas Walworth, Pennington, N.J., assignor to American Cyanamid Company, Stamford, Conn.

No Drawing. Filed Mar. 29, 1972, Ser. No. 239,365

Int. Cl. A01n *9/12*

U.S. Cl. 71—98 **15 Claims**

Carboxanilides of the formula:



where R, R_1, and R_3 are hydrogen or alkyl C_1–C_4; R_2 is sulfur or oxygen; and X and Y are hydrogen, halogen, alkyl C_1–C_4, alkylthio C_1–C_4, alkoxy C_1–C_4, nitro or trihaloalkyl C_1–C_4, are useful for controlling undesirable plant species.

3,782,919

METHOD OF MIXING WITH INCLINED ROTARY KILN TO PROVIDE METAL FOAM

Edward J. Rock, Blue Mounds, Wis., assignor to Johan Bjorksten, Madison, Wis.

Filed Jan. 17, 1972, Ser. No. 218,312

Int. Cl. C21c *1/08*

U.S. Cl. 75—20 F **4 Claims**

Molten metal, high melting fibers and foaming agent are mixed in a rotating inclined tube to provide foamable and foaming material to provide metal foam bodies.

3,782,920

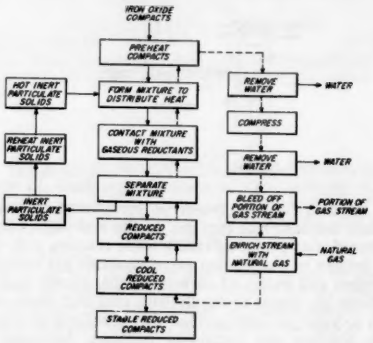
PROCESS FOR DIRECT REDUCTION OF IRON OXIDE COMPACTS

John A. Anthes, Carnegie, and Joseph Vlnaty, Aliquippa, Pa., assignors to Dravo Corporation, Pittsburgh, Pa.

Original application Apr. 29, 1970, Ser. No. 33,002, now Patent No. 3,635,456. Divided and this application Aug. 5, 1971, Ser. No. 169,508

Int. Cl. C21b *13/14*

U.S. Cl. 75—37 **12 Claims**



Process and apparatus for the direct reduction of iron oxides in compact form by preheating iron oxide compacts and enveloping them in hot inert particulate solids at the top of a columnar reactor then passing the mixture downwardly through the reactor countercurrent to an upward flow of natural gas that is introduced into the reactor bottom. Contact of the natural gas and the compacts with the hot solids results in reformation of the natural gas by reaction with carbon dioxide and the production of hydrogen and carbon monoxide, which hydrogen and carbon monoxide reduce the iron oxide of the compacts. Hot gases from the reactor are passed upwardly through a preheater for incoming iron oxide pellets and are then cooled, cleaned, and a portion returned to the bottom of the reactor. The reduced heated compacts are separated from the inert solids at the bottom of the reactor and are passed countercurrent to the natural gas that is being conducted to the reactor to heat it prior to introduction of the gas into the reactor bottom.

3,782,921

PRODUCTION OF STEEL WITH A CONTROLLED PHOSPHORUS CONTENT

Ernest Glaesener, Francois Schleimer, Fernand Wagner, Ferdinand Goedert, Alex Bauer, and Robert Mousel, Dudelange, Luxembourg, assignors to Arbed Acieries Reunies de Burbach-Eich-Dudelange, Luxembourg

No Drawing. Filed May 18, 1972, Ser. No. 254,680
Claims priority, application Luxembourg, May 21, 1971, 63,209
Int. Cl. C21c 7/02
U.S. Cl. 75—51 18 Claims

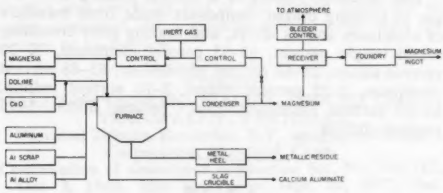
To prevent rephosphorizing reaction during tapping of the refining furnace into a metallurgical vessel, any premature decrease in the activity of the oxygen in the steel and in the slag entrained with the steel (which the addition of deoxidizing or alloying agents would bring about) is avoided while the steel in the vessel is still intimately mixed with the slag which is inevitably entrained. No deoxidizing and alloying agents are added until the slag has thickened on the surface of the steel in the vessel. A dephosphorizing process can be carried out in the vessel.

3,782,922

ALUMINOTHERMIC PRODUCTION OF MAGNESIUM AND AN OXIDIC SLAG CONTAINING RECOVERABLE ALUMINA

Julian Miles Avery, 47 Old Orchard Road, Chestnut Hill, Mass. 02167

Continuation-in-part of applications Ser. No. 796,214, Feb. 3, 1969, now Patent No. 3,658,509, dated Apr. 25, 1972, Ser. No. 25,118, Apr. 6, 1970, Ser. No. 143,886 and Ser. No. 144,321, both May 17, 1971, all of which in turn are continuation-in-parts of application Ser. No. 648,856, June 26, 1967, now Patent No. 3,579,326, dated May 18, 1971. This application Apr. 18, 1972, Ser. No. 245,142
Int. Cl. C22b 45/00
U.S. Cl. 75—67 14 Claims



An aluminothermic process for the production of magnesium by the reduction of magnesium oxide from a mixture of magnesium oxide and calcium oxide, by means of a metallic reducing agent comprising at least 85 percent aluminum, in the presence of a molten calcium-aluminate slag bath at a temperature of about 1300–1700° C. Magnesium evolves from the molten slag as a vapor. The process may be operated continuously and at atmospheric pressure. The molten slag residue is tapped periodically, when the MgO level is below 5 percent, and has a composition of 35–65 percent Al_2O_3, 35–55 percent CaO and 0–10 percent SiO_2 (by weight). The disclosure demonstrates how the ratio of magnesium oxide to calcium oxide in the charge and the quantity and composition of the metallic reducing agent are interrelated in such a way that (1) virtually all of both the reducing agent and magnesium oxide are consumed in the reducing reaction, and (2) the calcium-aluminate slag produced is of such a composition that pure alumina can be recovered from it with a very high yield.

3,782,923

CORROSION RESISTANT, NON-AUSTENITIC Fe-Ni-Mo-Co-Si ALLOY

Ralph A. Mendelson, Westminster, Karl P. Staudhammer, Gardena, and Roberto Valencia, Jr., Long Beach, Calif., assignors to the United States of America as represented by the Secretary of the Interior

No Drawing. Filed Apr. 26, 1971, Ser. No. 137,686
Int. Cl. C21c 31/00, 39/10
U.S. Cl. 75—122 1 Claim

An alloy containing principally cobalt, silicon, nickel and molybdenum, with the balance iron has excellent corrosion-resistant properties which render it particularly suitable in a sea water environment.

3,782,924

FINE-GRAINED ZIRCONIUM-BASE MATERIAL

George Robert Van Houten, Cincinnati, Ohio, assignor to the United States of America as represented by the United States Atomic Energy Commission

No Drawing. Filed Nov. 26, 1962, Ser. No. 240,187
Int. Cl. C22c 15/00
U.S. Cl. 75—122.5 19 Claims

A method of making zirconium with inhibited grain growth characteristics, by the process of vacuum melting the zirconium, adding 0.3 to 0.5% carbon, stirring, homogenizing and cooling.

3,782,925

FERRITIC HEAT-RESISTANT STEEL

Helmut Brandis and Rudolf Oppenheim, Krefeld, Germany, assignors to Deutsche Edelstahlwerke GmbH, Krefeld, Germany

No Drawing. Filed Dec. 13, 1972, Ser. No. 314,559
Claims priority, application Germany, Dec. 14, 1971, P 21 61 954.5
Int. Cl. C22c 39/14
U.S. Cl. 75—124 12 Claims

A heat-resistant ferritic steel contains from 10% to 15% chromium, the latter's effect in making the steel resistant to oxidation being helped by small amounts of aluminum, silicon, and to some extent by titanium, the latter, possibly assisted by other strong carbide-formers, also preventing chromium loss at the steel's grain boundaries, the steel additionally containing small but effective amounts of calcium, cerium or other rare earth metals used singly or together and causing any scale that forms to be adherent and free from flaking. The steel is particularly adaped for elevated temperature use under oxidizing conditions, particularly when the service involves thermal shock conditions, exemplified by the operation of internal combustion exhaust after-burners or catalytic reactors required for pollution control.

3,782,926

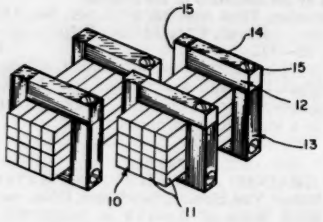
METHOD FOR PRODUCING AND EVALUATING ALLOYS

Milton E. Kirkpatrick, Palos Verdes Peninsula, and Ralph A. Mendelson, Westminster, Calif., assignors to TRW Inc., Redondo Beach, Calif.

Continuation-in-part of abandoned application Ser. No. 5,042, Jan. 22, 1970. This application Feb. 3, 1971, Ser. No. 112,151
Int. Cl. C22c 1/00, 33/00
U.S. Cl. 75—129 4 Claims

Corrosion resistant alloys are produced by forming blocks of the individual metals, clamping the blocks together and heating them in a furnace, thereby causing the metals at the surface of the blocks to slowly diffuse into each other. This diffusion will take place along an interface and will produce binary or multiple component alloys in all possible concentrations. The metal block is allowed to cool and then subjected to treatment in a test corrosion medium. The block is then viewed under an electron microscope and corrosion resistant areas are analyzed by X-ray or electron microprobe to determine the concentration of the metal components

in the corrosion resistant area. Compositions corresponding to the analysis will have about the same corrosion resistance in the test environment to which the block was subjected.



3,782,927

MATERIAL FOR DIRECT THERMOELECTRIC ENERGY CONVERSION WITH A HIGH FIGURE OF MERIT

Michael C. Nicolaou, Toronto, Ontario, Canada (Universidad Industrial de Santander, Bucaramanga, Colombia)

No Drawing. Filed Aug. 24, 1971, Ser. No. 174,531

Int. Cl. C22c *23/00, 31/00;* **H01v** *1/16*
U.S. Cl. 75—134 B **25 Claims**

In devices used hitherto for the direct conversion of heat into electricity, commonly known as "thermoelectric energy converters," the efficiency of conversion is appreciably lower than that of conventional reciprocating or rotary heat engines. The basic reason for this low efficiency is inherent in the physical properties of the materials selected for the manufacture of these devices. The materials that have been and are currently being used for this purpose are intermetallic compounds and alloys of silicon and germanium. In this invention an entirely new material is developed. It is composed of an alloy or solid solution of the three intermetallic compounds: magnesium stannide, magnesium germanide and magnesium silicide, and defined by the chemical formula: $Mg_2Si_xGe_ySn_{1-x-y}$. This material, when properly doped, possesses a figure of merit and, consequently, an efficiency of direct conversion of thermal energy into electrical energy far exceeding that of any other material previously known or used.

3,782,928

COMPOSITE ALLOY FOR HIGH TEMPERATURE APPLICATIONS

John L. Walter, Scotia, and Harvey E. Cline, Schenectady, N.Y., assignors to General Electric Company

Continuation-in-part of abandoned application Ser. No. 97,917, Dec. 14, 1970. This application Nov. 8, 1972, Ser. No. 304,614

Int. Cl. C22c *19/00*
U.S. Cl. 75—134 F **5 Claims**

An anisotropic polyphase composite alloy structure having good high temperature tensile strength and resistance to corrosion is provided. The composite alloy consists essentially in atomic percent of 30–35% nickel, 30–35% aluminum, 27–32% chromium and 2.0–7.0% molybdenum and has been subjected to unidirectional solidification to form bodies having a morphology of high strength

aligned plates of Cr(Mo) embedded in a NiAl matrix phase.

3,782,929

FLUXLESS ALUMINUM BRAZING

William J. Werner, Clinton, Tenn., assignor to the United States of America as represented by the United States Atomic Energy Commission

No Drawing. Original application Oct. 2, 1970, Ser. No. 77,762, now Patent No. 3,697,259. Divided and this application June 23, 1972, Ser. No. 266,931

Int. Cl. C22c *21/04*
U.S. Cl. 75—143 **3 Claims**

This invention relates to a fluxless brazing alloy for use in forming brazed composites made from members of aluminum and its alloys, said brazing alloy consisting of, in weight percent, 35–55 percent aluminum, 10–20 percent silicon, 25–60 percent germanium; 65–88 percent aluminum, 2–20 percent silicon, 2–18 percent indium; 65–80 percent aluminum, 15–25 percent silicon, 5–15 percent yttrium.

3,782,930

GRAPHITE-CONTAINING FERROUS-TITANIUM CARBIDE COMPOSITION

Akira Shibata, Yokohama, Japan, assignor to Chugai Electric Industrial Co., Ltd., Tokyo, Japan

Filed June 13, 1972, Ser. No. 262,281

Claims priority, application Japan, Aug. 28, 1971, 46/65,968

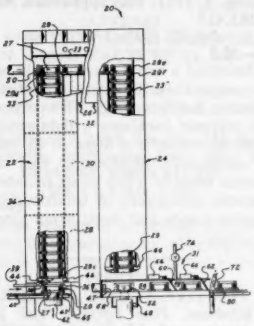
Int. Cl. B22f *3/16;* **C22c** *29/00*
U.S. Cl. 75—204 **7 Claims**

A sintered graphite-containing ferrous-titanium carbide composition is provided which is produced by a liquid phase sintering process, wherein a powder composition comprising a mixture of iron, titanium (e.g. ferro-titanium), cast iron and carbon is pressed into a compact and the compact then heated to above the melting point of the cast iron such that the carbon in the melt reacts with the titanium to form titanium carbide, the amount of carbon being also sufficient to form graphite, such that on cooling, a metallographic structure is obtained comprised of fine grains of precipitated titanium carbide dispersed in a ferrous matrix which also contains precipitated particles of graphite.

3,782,931
METHOD AND APPARATUS FOR SINTERING ANNULAR COMPACTS

Alexander Brede III, Lansing, Mich., Charles Robert Talmage, New Canaan, Conn., and Elvin E. Tuttle, Lansing, Mich., assignors to Motor Wheel Corporation, Lansing, Mich.

Filed Jan. 11, 1971, Ser. No. 105,167
Int. Cl. B22f *5/00, 3/12, 7/06*
U.S. Cl. 75—224 **2 Claims**



A method and apparatus for sintering annular compacts without any substantial temperature gradients through the compacts. The method involves axial movement of the compact through vertical heating and cooling towers of a controlled atmosphere furnace with lateral movement of the compact through a crossover conduit interconnecting the upper ends of the towers. The lower end of the heating tower is provided with an inlet opening in constant communication with the exterior of the furnace and the lower end of the cooling tower has an outlet connected via a sealable exit chamber with the exterior of the furnace.

3,782,932
ELECTROPHORETIC IMAGING PROCESS USING TRANSPARENT PARTICLES

Vsevolod Tulagin, Rochester, N.Y., assignor to Xerox Corporation, Stamford, Conn.

Continuation of abandoned application Ser. No. 764,717, Oct. 3, 1968. This application Sept. 20, 1972, Ser. No. 290,619
Int. Cl. G03g *13/22*
U.S. Cl. 96—1.3 **4 Claims**

An image is formed photoelectrophoretically by exposing an imaging suspension to a light image in the presence of an electric field. The resulting image formed is contacted with a secondary suspension containing an abrasive ingredient in the presence of said electric field and exposure.

3,782,933
SENSITIZED ELECTROPHOTOGRAPHIC LAYERS

Hans Ohlschlager, Cologne, and Oskar Riester, Leverkusen, Germany, and Theofiel Hubert Ghys, Kontich, Karel Eugeen Verhille, Mortsel, and Ir Johannes Vanheertum, Halle-Zandhoven, Belgium, assignors to Agfa-Gevaert Aktiengesellschaft, Leverkusen, Germany

No Drawing. Filed Apr. 26, 1972, Ser. No. 247,813
Claims priority, application Germany, Apr. 29, 1971, P 21 21 014.0
Int. Cl. G03g *5/08, 5/06*
U.S. Cl. 96—1.7 **2 Claims**

Spectrally sensitized electrophotographic material the photoconductive layer thereof contains as sensitizer a dye which contains at least one 2-oxo- or 2-thio-pyrimidine ring in the molecule.

3,782,934
SPECTRALLY SENSITIZED ELECTROPHOTOGRAPHIC MATERIAL

Hans Öhlschläger, Cologne, Germany, Theofiel Hubert Ghys, Kontich, and Karel Eugeen Verhille, Hoboken, Belgium, and Helmut Kampfer, Cologne, Germany, assignors to Agfa-Gevaert Aktiengesellschaft, Leverkusen, Germany

No Drawing. Filed Jan. 17, 1972, Ser. No. 218,541
Claims priority, application Germany, Jan. 18, 1971, P 21 02 175.0
Int. Cl. G03c *5/00*
U.S. Cl. 96—1.7 **1 Claim**

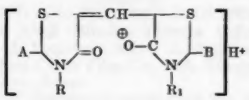
Spectrally sensitized electrophotographic layers on the basis of zinc oxide as photoconductive agent which are nearly colorless and stable in storage contain reaction products of 2-methyl- or 4-methyl-quaternary salts of heterocyclic bases with 4-hydroxybenzaldehydes.

3,782,935
NOVEL TETRANUCLEAR METHINE DYES, PROCESSES FOR PREPARING THE SAME, AND ELECTROPHOTOGRAPHIC SYSTEMS AND SILVER HALIDE EMULSIONS CONTAINING THE SAME

Shi-Kuang Yao, Binghamton, N.Y., assignor to GAF Corporation, New York, N.Y.

No Drawing. Original application May 13, 1968, Ser. No. 728,837, now Patent No. 3,687,946. Divided and this application May 12, 1972, Ser. No. 252,912
Int. Cl. G03g *5/06, 5/08*
U.S. Cl. 96—1.7 **6 Claims**

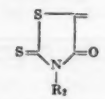
Novel tetranuclear dyes useful as sensitizers in electrophotographic systems as well as silver halide emulsions comprise compounds of the formula:



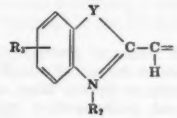
wherein

A is selected from the group consisting of

(1)



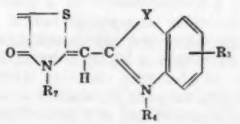
(2)



and

(3) O=

B is selected from the group consisting of (1), (2) and (4)



R is alkyl;

R_1, R_2 and R_4 are selected from the group consisting of alkyl and carboxyalkyl;

R_3 is selected from the group consisting of hydrogen, alkyl and alkoxy; and

Y is selected from the group consisting of Se and S;

such compounds being characterized that when A is (1),

B is (1); when A is (2), B is (2) and when A is (3), B is (4).

Processes of producing such dyes as well as electrophotographic processes and materials containing the same are provided.

3,782,936

DIFFUSION TRANSFER RECEPTION ELEMENTS, FILM UNITS AND PROCESSES THEREFOR

Thomas I. Abbott, Rochester, Glen M. Dappen, Webster, and Nayyir F. Irani, Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

No Drawing. Filed Aug. 24, 1971, Ser. No. 174,443

Int. Cl. G03c *1/84, 5/54, 7/32*

U.S. Cl. 96—3 **22 Claims**

Zinc oxide is employed in association with a light-reflecting layer comprising titanium dioxide dispersed in a binder which is associated with a dye image-receiving layer employed in color diffusion transfer systems.

3,782,937

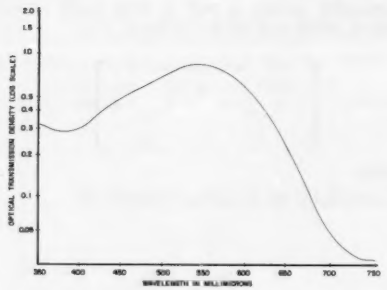
PHOTOGRAPHIC PRODUCTS AND PROCESSES WITH pH SENSITIVE OPTICAL FILTER DYES

Ernest W. Ellis, North Reading, Paul T. MacGregor, Lexington, and Myron S. Simon, West Newton, Mass., assignors to Polaroid Corporation, Cambridge, Mass.

Filed Dec. 1, 1971, Ser. No. 203,544

Int. Cl. G03c *7/00*

U.S. Cl. 96—3 **46 Claims**



This invention relates to photography, and more particularly, it relates to the use of mixed phenol and mixed naphthol phthaleins as optical filter agents to protect a selectively exposed photosensitive material from post-exposure fogging in photographic processes where development of the photosensitive material is conducted in the presence of extraneous incident light. This class of indicator dyes comprises 3,3-disubstituted phthalides and 3,3-disubstituted naphthalides wherein one of the 3,3 substituents is a p-hydroxyphenyl or a p-hydroxynaphthyl radical and the other is a phenyl radical other than p-hydroxyphenyl. At a first pH in alkaline solution the above-noted dyes have a highly colored, light-absorbing form capable of absorbing radiation within a predetermined wavelength range in the shorter wavelength region of the visible spectrum and at a second less alkaline pH have a colorless form that is substantially non-light-absorbing in the visible spectrum. By selecting a dye from this class which is in its light-absorbing form at the pH at which development is performed, protection of the exposed photosensitive material from radiation actinic thereto is afforded within the wavelength range absorbed by the dye and subsequent to at least the initial stages of develepoment, the dye may be rendered substantially colorless by adjusting the pH to permit viewing of the final image.

3,782,938

PHOTOSENSITIVE ELEMENT COMPRISING POLYMERS WITH CYCLOPROPENYL GROUPS AND PROCESS

Charles D. De Boer, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

No Drawing. Continuation-in-part of abandoned applications Ser. No. 831,242, June 6, 1969, and Ser. No. 168,342, Aug. 2, 1971. This application Nov. 30, 1971, Ser. No. 203,427

Int. Cl. G03c *1/68, 1/70*

U.S. Cl. 96—35.1 **12 Claims**

There is described a novel class of light-sensitive polymers and the use of these polymers in photosensitive composition elements and processes. The polymers have appended to a polymer backbone a light-sensitive unsaturated cyclic group which is a three to six membered carbocyclic or monocyclic heterocyclic ring containing an ethylenic double bond or a five to six membered ethylenically unsaturated carbocyclic or heterocyclic ring free of exocyclic double bonds and fused to an aromatic ring of the benzene series.

3,782,939

DRY POSITIVE-ACTING PHOTORESIST

James A. Bonham, Pine Springs, and Panayotis C. Petrellis, Maplewood, Minn., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

No Drawing. Filed Feb. 9, 1972, Ser. No. 224,949

Int. Cl. G03c *5/00*

U.S. Cl. 96—35.1 **7 Claims**

A process for forming an imagewise pattern of a positive-acting photoresist material on a receptor surface is provide, wherein a dry film of photosolubilizable material, supported by a carrier sheet, is bonded to the receptor followed by exposure and development thereof to leave an image pattern on the receptor.

Conventional processes can then be used to treat the exposed receptor surface, e.g. etching, plating, etc.

3,782,940

ION-ETCHING METHOD

Michihiro Ohto, Tokyo, Atsumi Noshiro, Yokohama, and Tetsuya Mayuzumi, Annaka, Japan, assignors to Dai Nippon Printing Co., Ltd., and Shinetsu Chemical Company, both of Tokyo, Japan

Filed Sept. 18, 1972, Ser. No. 289,957

Claims priority, application Japan, Sept. 20, 1971, 46/73,148

Int. Cl. G03c *5/00*

U.S. Cl. 96—36 **4 Claims**

A photopolymerizable composition comprising 100 parts by weight of photopolymerizable organopolysiloxane made from γ-acryloxypropyltrichlorsilane and dihydroxydimethylpolysiloxane, 4 parts by weight of 4,4'-bis{dimethylamino}benzophenon, and 1,000 parts by weight of a solvent is applied over a base plate, and thereon a positive pattern is laid. From above the positive pattern a light is supplied to carry out developing and fixing treatments and subsequently ion-etching to finally obtain etched products having fine patterns with little side-etching phenomenon.

3,782,941

PHOTOTHERMOGRAPHIC ELEMENT, COMPOSITION AND PROCESS

Paul Hartman and Gale E. Smith, Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

No Drawing. Filed July 18, 1972, Ser. No. 272,833

Int. Cl. G03c *5/24, 1/02, 1/72*

U.S. Cl. 96—48 HD **18 Claims**

An N-hydroxynaphthalimide accelerator-toning agent in photothermographic elements, compositions and processes provides improved results in shorter processing time

and at lower concentrations. The N-hydroxynaphthalimide compounds can be employed in photothermographic materials and/or thermographic materials in combination with reducing agents. Other addenda commonly employed in photothermographic materials such as sensitizing dyes, image stabilizers and stabilizer precursors and various photosensitive compounds can be employed in the photothermographic materials also.

3,782,942

METHOD FOR PREPARING ARTWORK TO BE USED IN MANUFACTURING OF PRINTED CIRCUITS

Giampiero Compare, Milan, Italy, assignor to General Electric Information Systems S.p.A., Caluso, Turin, Italy

Filed June 7, 1968, Ser. No. 735,462
Claims priority, application Italy, June 8, 1967, 16,967/67, Patent 816,880
Int. Cl. G03c *5/04*
U.S. Cl. 96—41 **2 Claims**

This invention relates to a method for preparing artwork to be used in manufacturing of printed circuits. The novelty resides in the provision of optical reference means on a plurality of masks and a photosensitive member which permits precision alignment of the masks relative to a photosensitive member.

3,782,943

PROCESS FOR THE FORMATION OF IMAGE POLYMERS

Yoshihida Hayakawa and Masato Satomura, Asaka, Japan, assignors to Fuji Photo Film Co., Ltd., Minami Ashigara-shi, Kanagawa, Japan

No Drawing. Continuation of abandoned application Ser. No. 790,457, Jan. 10, 1969. This application Aug. 3, 1971, Ser. No. 168,742
Claims priority, application Japan, Jan. 10, 1968, 43/1,215
Int. Cl. G03c *1/68, 1/70, 5/26*
U.S. Cl. 96—48 R **25 Claims**

A process for forming images involving polymerizing at least one addition polymerizable vinyl compound in a photographic silver halide emulsion layer containing a phenol.

3,782,944

PROCESS FOR THE POLYMERIZATION OF VINYL COMPOUND

Yoshihide Hayakawa and Masato Satomura, Kanagawa, Japan, assignors to Fuji Photo Film Co., Ltd., Minami Ashigara-shi, Kanagawa, Japan

No Drawing. Continuation of application Ser. No. 137,982, Apr. 27, 1971, which is a continuation of application Ser. No. 701,873, Jan. 31, 1968, both now abandoned. This application Oct. 10, 1972, Ser. No. 296,503
Claims priority, application Japan, Jan. 31, 1967, 42/6,213
Int. Cl. G03c *1/68, 1/70*
U.S. Cl. 96—48 R **21 Claims**

A process for the selective polymerization of a polymerizable vinyl compound which comprises exposing a gelatino silver halide photographic emulsion layer containing silver halide particles to electromagnetic waves or particle rays to give centers of development to said silver halide particles causing the silver halide photographic emulsion layer to react, in the presence of at least one vinyl compound, with a naphthol derivative having two hydroxyl groups, or one hydroxyl group and one amino group at the 1,6-positions, 1,8-positions, 2,5-positions or 2,7-positions on the naphthalene nuclei.

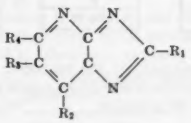
3,782,945

MERCAPTOTETRAZAINDENE IN PHOTOGRAPHIC PRINTING PLATE DEVELOPMENT

Isao Shimamura, Yoo Iijima, Eiichi Okutsu, Haruhiko Iwano, Tadao Shishido, and Reiichi Ohi, Kanagawa, Japan, assignors to Fuji Photo Film Co., Ltd., Minami Ashigara-shi, Kanagawa, Japan

No Drawing. Filed June 11, 1971, Ser. No. 152,397
Claims priority, application Japan, June 11, 1970, 45/50,564
Int. Cl. G03c *5/30*
U.S. Cl. 96—66.3 **19 Claims**

A process for developing a silver halide photographic element which comprises developing a lithographic light-sensitive material in the presence of the compound represented by the following general formula,



wherein R_1 and R_2, which may be the same or different, represent a hydrogen atom, a hydroxyl group, a hydrocarbon group or $—SR_5$; at least one of said R_1 and R_2 being $—SR_5$; R_5 represents a hydrogen atom or an alkyl radical; and R_3 and R_4, which may be the same or different, represent a hydrogen atom, a hydroxyl group, a halogen atom, or a hydrocarbon group; said R_3 and R_4 may be ring-closed to form a 5- or 6-membered ring.

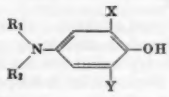
3,782,946

PHOTOGRAPHIC DEVELOPMENT

Atsuaki Arai, Kinji Ohkubo, Tatsuya Tajima, Mitsugu Tanaka, and Yosinori Tutiya, Kanagawa, Japan, assignors to Fuji Photo Film Co., Ltd., Minami Ashigara-shi, Kanagawa, Japan

Continuation of abandoned application Ser. No. 851,854, Aug. 21, 1969. This application Mar. 9, 1972, Ser. No. 233,309
Claims priority, application Japan, Aug. 21, 1968, 43/59,672
Int. Cl. G03c *1/06, 5/26, 5/30*
U.S. Cl. 96—66.3 **12 Claims**

A photographic developing method providing increased image density and sensitivity comprising developing an exposed light-sensitive silver halide photographic emulsion with an alkaline solution containing a combination of hydroquinone in a compound of the formula



wherein R_1, R_2, X and Y are each alkyl radicals having up to 4 carbon atoms.

3,782,947

PHOTOGRAPHIC PRODUCT WITH PHOTOGRAPHICALLY TRANSPARENT MAGNETIC RECORDING MEDIUM

Harry J. Krall, Los Gatos, Calif., assignor to Eastman Kodak Company, Rochester, N.Y.

Continuation-in-part of abandoned application Ser. No. 122,147, Mar. 8, 1971. This application Jan. 28, 1972, Ser. No. 221,502
Int. Cl. G03c *1/76*
U.S. Cl. 96—67 **33 Claims**

A photographic product carries magnetically susceptible particles which are uniformly distributed across (at least part of) the image area of the product. The particle distribution and size(s) are so designed that the composite

granularities of the photographic and magnetic media is such that the magnetic distribution is essentially transparent in a photographic sense. Thus, the photographic

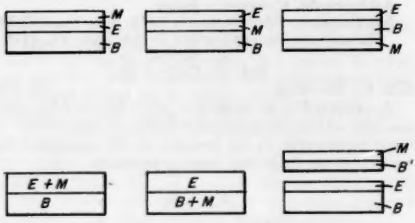


image may be viewed via the magnetic distribution, and the magnetic distribution may be employed for recording and playback of information.

3,782,948

PHOTOGRAPHIC MATERIAL CONTAINING NITRO COMPOUNDS FOR THE SILVER DYESTUFF BLEACHING PROCESS

Alfred Froehlich, Marly-le-Grand, and Alfred Oetiker and Heinrich Schaller, Fribourg, Switzerland, assignors to Ciba-Geigy AG, Basel, Switzerland

No Drawing. Continuation-in-part of abandoned application Ser. No. 812,860, Apr. 2, 1969. This application Jan. 13, 1972, Ser. No. 217,654

Claims priority, application Switzerland, Apr. 9, 1968, 5,236/68

Int. Cl. G03c *1/76*

U.S. Cl. 96—73 **11 Claims**

Aromatic or heterocyclic nitro compounds as oxidizing agents for the reduced dyestuff bleaching catalyst in photographic material for the silver dyestuff bleaching process.

3,782,949

PHOTOGRAPHIC ELEMENT COMPRISING A HYDROXY SUBSTITUTED ALIPHATIC CARBOXYLIC ACID ARYL HYDRAZIDE

Ismael Adolfo Olivares, Frederic Roland Bean, and Grant Milford Haist, Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

No Drawing. Filed Mar. 11, 1971, Ser. No. 123,450

Int. Cl. G03c *1/48, 1/06*

U.S. Cl. 96—76 R **8 Claims**

Hydroxy substituted aliphatic carboxylic acid aryl hydrazides are employed as developing agents for exposed electromagnetic energy sensitive silver salts. The developing agents can be employed in developer solutions, in silver salt processing solutions, as incorporated developing agents, as a developing agent in diffusion transfer processes, and as the reducing agent in heat processing techniques.

3,782,950

PHOTOGRAPHIC MATERIAL

Erwin Ranz, Leverkusen, Wolfgang Himmelmann, Opladen-Lutzenkirchen, and Peter Bergthaller and Jurgen Hocker, Cologne, Germany, assignors to Agfa-Gevaert Aktiengesellschaft, Leverkusen, Germany

No Drawing. Filed Mar. 10, 1972, Ser. No. 233,753

Claims priority, application Germany, Mar. 13, 1971, P 21 12 141.5

Int. Cl. G03c *1/70*

U.S. Cl. 96—85 **9 Claims**

Photographic layers containing a light-sensitive cyclic aryl polycarboxylic acid imide and a compound having at least one olefinic double bond or having groups capable of forming olefinic double bonds upon exposure become less soluble or less swellable upon exposure at the light-struck areas. A relief image is obtained after removal of the unexposed areas.

3,782,951

PHOTOPOLYMERIZABLE COMPOSITIONS CAPABLE OF YIELDING REVERSE IMAGES

Shung-Yan Lee, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

No Drawing. Filed July 31, 1972, Ser. No. 276,381

Int. Cl. G03c *1/94*

U.S. Cl. 96—86 P **6 Claims**

Photopolymerizable compositions are described containing an ethylenically unsaturated monomer, an organic polymeric binder and, as the initiator system, a hexaarylbiimidazole and a hydrogen-donor compound. These inventive compositions are capable of yielding reverse photopolymer images since relatively intense radiation prevents polymerization, while less intense radiation yields photopolymerization. The first (intense) exposure is imagewise and the second (less intense) exposure is nonimagewise. The compositions are useful in the graphic arts where a positive-working system is required, e.g., for relief or planographic printing plates, direct positive copying films, and the like.

3,782,952

LIGHT-SENSITIVE COMPOSITION OF A TETRA (EPOXY-PROPOXYPHENYL)-LOWER ALKANE AND AN INITIATOR

Eugene Golda, Monsey, and Delos E. Bown, White Plains, N.Y., assignors to Polychrome Corporation, Yonkers, N.Y.

No Drawing. Filed Apr. 1, 1971, Ser. No. 130.534

Int. Cl. G03c *1/66*

U.S. Cl. 96—93 **7 Claims**

A light-sensitive composition comprising a tetra(epoxypropoxyphenyl)-lower alkane and a light-activated polymerization initiator.

3,782,953

PURIFICATION OF SILVER HALIDE PRECIPITATES

Stephen Barry Maley, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

No Drawing. Filed Sept. 20, 1971, Ser. No. 182,179

Int. Cl. G03c *1/02, 1/04*

U.S. Cl. 96—94 R **10 Claims**

An improved method for washing silver halide precipitates by employing ion-exchange resins which are capable of substituting hydroxyl ions and hydrogen ions for extraneous soluble salts.

3,782,954

METHOD FOR THE UNIFORM PREPARATION OF SILVER HALIDE GRAINS

Henry D. Porter and Benjamin A. Johnson, both % Eastman Kodak Company, Rochester, N.Y. 14650

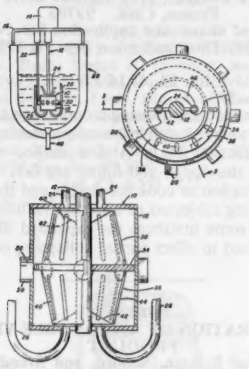
Continuation of abandoned application Ser. No. 876,893, Nov. 14, 1969. This application Nov. 1, 1971, Ser. No. 194,451

Int. Cl. G03c *1/02*

U.S. Cl. 96—94 **2 Claims**

A method and apparatus for its practice are disclosed where, uniformly sized silver halide grains are precipitated in an aqueous peptizer solution by the reaction of a silver salt solution with a halide salt solution, where at least one of the solutions has been mixed with a portion of the peptizer solution prior to its reaction with the other solution within the remainder of the peptizer solution. Appa-

ratus is disclosed for practicing the method of this invention including at least one separate mixing chamber for



dilution of a salt solution with a portion of the peptizer solution prior to the precipitation reaction.

3,782,955
PHOTOGRAPHIC MATERIAL

Bruno Mucke, Cologne, Karl Lohmer, Leverkusen, and Wolfgang Himmelmann, Opladen, Germany, assignors to Agfa-Gevaert Aktiengesellschaft, Leverkusen, Germany

No Drawing. Filed Mar. 23, 1971, Ser. No. 127,363
Claims priority, application Germany, Apr. 17, 1970, P 20 18 552.8; July 4, 1970, P 20 33 264.3
Int. Cl. C09h *7/00;* **G03c** *1/72*
U.S. Cl. 96—114.8 **5 Claims**

Improved heated drum drying properties are obtained for photographic silver halide-gelatin emulsions wherein some of the gelatin is modified to keep it from being hardened by organic hardeners.

3,782,956
LIGHT-SENSITIVE COLOR PHOTOGRAPHIC MATERIAL WITH INDAZOLONE COLOR COUPLERS

Immo Boie, Cologne, Walter Schulte, Opladen, Willibald Pelz and Fritz Nittel, Cologne, and Friedrich-Wilhelm Kunitz, Leverkusen, Germany, assignors to Agfa-Gevaert Aktiengesellschaft, Leverkusen, Germany

No Drawing. Filed July 15, 1971, Ser. No. 163,044
Claims priority, application Germany, July 18, 1970, P 20 35 725.9
Int. Cl. G03c *1/40*
U.S. Cl. 96—100 **4 Claims**

Indazolones having a carbamyl substitution in the benzene ring make particularly desirable magenta-forming color couplers for color photography.

3,782,957
FOGGED, DIRECT-POSITIVE SILVER HALIDE EMULSION LAYER CONTAINING A CYANINE DYE AND A COMPOUND CONTAINING A METAL OF GROUP VIII OF THE PERIODIC TABLE

Kinji Ohkubo, Takao Masuda, Keisuke Shiba, Masanao Hinata, Akira Sato, and Akira Ogawa, Minami Ashigara-machi, Japan, assignors to Fuji Photo Film Co., Ltd., Minami Ashigara-shi, Kanagawa, Japan

No Drawing. Filed Dec. 29, 1971, Ser. No. 213,809
Claims priority, application Japan, Dec. 29, 1970, 46/121,455
Int. Cl. G03c *1/36*
U.S. Cl. 96—101 **20 Claims**

A direct reversal silver halide photographic material suitable for use in a copying process utilizing a mercury or fluorescent lamp is provided by including a compound of a metal of Group VIII of the Periodic Table and a specific cyanine dye in a silver halide emulsion layer. The fog nuclei formed in the silver halide emulsion layer beforehand have resistance to indoor illumination, and the resultant photographic material can be handled under indoor illumination without causing the breakage of the fog nuclei, and gives images of good contrast.

3,782,958
GLASS SHOWING ELECTRICAL SWITCHING PHENOMENA

Adli Bishay and Mahmoud Aly El Hamamsy, Cairo, and Mohammed Hosny Omar, Heliopolis, Egypt, assignors to the United States of America as represented by the Secretary of the Air Force

Filed Feb. 7, 1972, Ser. No. 223,831
Int. Cl. C03c *3/14, 3/30;* **H01b** *1/06*
U.S. Cl. 106—47 R **4 Claims**

A glass composition is provided that consists essentially of an alkali or alkaline earth metal borate containing iron. The glass is useful in fabricating memory switching devices that can be used, for example, in digital equipment and display units, and thermistors.

3,782,959
POLYHEDRAL BORANE FOGGED DIRECT-POSITIVE SILVER HALIDE EMULSION CONTAINING AN ORGANIC SULFOXIDE

John H. Bigelow, Rochester, N.Y., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

No Drawing. Filed Feb. 15, 1972, Ser. No. 226,513
Int. Cl. G03c *1/28*
U.S. Cl. 96—107 **15 Claims**

Direct positive photographic silver halide emulsion elements having improved developed silver covering power resulting in increased maximum density are prepared by adding to a chemically fogged silver halide emulsion at the start or during the digestion step from 50 to 400 milliliters of a dialkyl sulfoxide per 1.5 moles of silver nitrate. The alkyl groups of the sulfoxide may contain from 1 to 4 carbon atoms. The silver halide emulsions are preferably fogged with amine boranes or boron hydrides in which the skeletal framework forms a polyhedron borane cage containing 6 to 12 boron atoms or a fragment thereof, and which may contain heteroskeletal atoms selected from the group consisting of carbon, sulfur and nitrogen atoms.

3,782,960
DIRECT-PRINT LIGHT-DEVELOPABLE EMULSION CONTAINING SILVER HALIDE GRAINS SENSITIZED ON THE SURFACE WITH SILVER THIOCYANATE, IODIDE AND GOLD COMPOUND

David W. Walters, Williamson, Robert E. Heeks, Penfield, and Donald P. Sullivan, Rochester, N.Y., assignors to Xerox Corporation, Stamford, Conn.

No Drawing. Filed Mar. 18, 1971, Ser. No. 125,816
Int. Cl. G03c *1/28*
U.S. Cl. 96—108 **3 Claims**

A photographic emulsion of the silver halide direct-print light-developable type containing silver thiocyanate. Optimum results may be obtained by addition of iodide and gold sensitizers.

3,782,961
PHOTOSENSITIVE COMPOSITION COMPRISING POLYURETHANE PREPOLYMER

Katsutoshi Takahashi and Masanori Takase, Urawa, Japan, assignors to Dainippon Ink and Chemicals, Incorporated, Tokyo, Japan

No Drawing. Filed Mar. 30, 1971, Ser. No. 129,620
Claims priority, application Japan, Mar. 30, 1970, 45/25,894
Int. Cl. G03c *1/70*
U.S. Cl. 96—115 R **8 Claims**

A photosensitive composition comprising a polyurethane prepolymer and a photosensitizer, the prepolymer being prepared by the reaction of a hydroxyl component

having at least 5 ether linkages and an ethylenically unsaturated double bond positioned at the terminals with a polyisocyanate component.

3,782,962
TEXTURED BASE MATERIALS OR PRODUCTS FROM CERTAIN CARBOXYALKYL ETHERS OF POLYGALACTOMANNANS AND PROCESS OF PREPARING SAME
Joseph D. Mullen, Golden Valley, and Mary P. Nivens, New Hope, Minn., assignors to General Mills, Inc.
No Drawing. Filed Mar. 7, 1972, Ser. No. 232,604
Int. Cl. A23l *1/00*
U.S. Cl. 426—70 **11 Claims**

A fibrous product is prepared by mixing a fluid, aqueous solution of certain carboxyalkyl ethers of polygalactomannans with a second aqueous solution containing calcium ions, said mixing being sufficient to rupture the forming sac-like precipitates to yield the fibrous product. The said product is useful as a structuring agent for various foods, supplying such structure without calorie contribution.

3,782,963
METHOD OF VITAMIN COATING CEREAL PRODUCTS
Leroy F. Duvall and Charles D. Stone, Barrington, Ill., assignors to The Quaker Oats Company, Chicago, Ill.
No Drawing. Filed May 17, 1971, Ser. No. 144,347
Int. Cl. A23l *1/10, 1/30*
U.S. Cl. 426—303 **5 Claims**

This invention relates to a process of vitamin coating cereal products and particularly to a new vitamin coating procedure for ready-to-eat breakfast cereals.

3,782,964
METHOD OF UPGRADING STARCH-CONTAINING CRUDE GLUTEN
James W. Knight, Wilmslow, England, assignor to CPC International Inc.
No Drawing. Filed Jan. 21, 1969, Ser. No. 792,771
Int. Cl. A23j *3/00*
U.S. Cl. 426—364 **1 Claim**

The present invention provides a process for rendering crude starch-containing gluten edible by subjecting the crude gluten to the hydrolytic action of alpha amylase to substantially hydrolyze the starch and introducing steam into the amylase treated gluten to heat the gluten to a temperature of at least 95° C. for several minutes. The hydrolyzed starch optionally may be removed in the aqueous fraction by filtration or like separation steps yielding an upgraded edible protein, or the mixture may be dried in its entirety by spray drying, roll-drum drying or the like.

3,782,965
PROCESS FOR PRODUCING COFFEE EXTRACT
Martin S. Colton, Tarrytown, and Marvin Schulman, Monroe, N.Y., assignors to General Foods Corporation, White Plains, N.Y.
No Drawing. Filed May 15, 1972, Ser. No. 253,067
Int. Cl. A23f *1/08*
U.S. Cl. 426—432 **3 Claims**

A process for producing coffee extract by contacting an aqueous extraction liquid with progressively fresher roasted and ground coffee in the extraction columns of a percolator set wherein the aqueous extraction liquid is defoamed using nonchemical means prior to passing it through the extraction column containing the freshest roasted and ground coffee. The coffee extract drawn-off from the extraction column containing the freshest coffee remains substantially defoamed and the process also results in higher coffee solids yields for the overall extraction process.

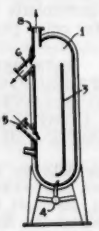
3,782,966
METHOD OF MAKING A BAKERY PRODUCT HAVING AN EXPANDED FILLING
John H. Forkner, 2116 Mayfair Drive W., Fresno, Calif. 93703
Continuation of abandoned application Ser. No. 873,581, Nov. 3, 1969. This application Sept. 7, 1971, Ser. No. 178,381
Int. Cl. A21d *13/00*
U.S. Cl. 426—275 **8 Claims**

A bakery product comprising a cooked (e.g., by baking or deep-fat frying) dough physically associated with an expanded confection filling. Also a method of manufacture in which the dough and filling are first subjected to a cooking operation to cook the dough and thereafter the dough and filling subjected to a partial vacuum to expand the filling. In some instances the expanded filling can be further processed to effect partial collapsing of the filling.

3,782,967
PREPARATION OF AN EATABLE YEAST PRODUCT
Bjorn Westphal Eriksen, Soborg, and Svend Danielsen, Copenhagen, Denmark, assignors to Aktieselskabet Dansk Gaerings-Industri, Copenhagen, Denmark
Continuation of abandoned application Ser. No. 824,185, May 13, 1969. This application Apr. 17, 1972, Ser. No. 244,943
Int. Cl. A23j *1/18*
U.S. Cl. 426—62 **12 Claims**

A process for preparing an eatable yeast product wherein a yeast material, preferably a yeast cream, is contacted, under conditions of vigorous agitation, with a hot oil or fat having a temperature above the boiling point of water at the actual pressure, preferably 150–210° C. Thereby, the yeast material is inactivated and dried, preferably to a water content of less than 5 percent by weight, and its taste is improved, becoming more or less silimlar to the taste of fried meat. The process is preferably carried out in a continuous manner in an elongated tubular reactor, the yeast material being introduced into a current of hot fat or oil in said tubular reactor.

3,782,968
METHOD OF DEHULLING LEGUMES
Claus Herzberg, Krefeld, and Wilhelm Dollbaum, Kaldenhausen, Germany, assignors to Holtz & Willemsen, Krefeld-Uerdingen, Germany
Filed Feb. 17, 1971, Ser. No. 116,142
Claims priority, application Germany, Feb. 19, 1970, P 20 07 588.1
Int. Cl. A23l *1/20*
U.S. Cl. 426—511 **6 Claims**



A method of treatment of soya beans for the production of debittered soya bean flour, where raw soya beans are crushed into fractions, whirled for a short period of time by a jet of overheated water steam in a whirl chamber, exposed to mechanical impacts to separate hull par-

ticles from the bean body particles, and the upper portion of the whirling steam together with the separated light hull particles is discharged from the whirl chamber.

3,782,969

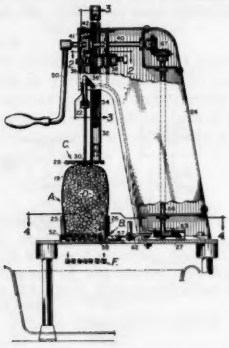
FRENCH FRY CUT POTATO DOUGH PIECE

Roderick G. Beck, James F. Harmon, and Mounir A. Shatila, Blackfoot, Idaho, David A. Richins, Bountiful, Utah, and John H. Lach, Blackfoot, Idaho, assignors to American Potato Company, San Francisco, Calif.

Original application Apr. 16, 1969, Ser. No. 816,675, now Patent No. 3,605,647. Divided and this application Sept. 4, 1970, Ser. No. 69,885

Int. Cl. A23l *1/12*

U.S. Cl. 426—145 3 Claims



A machine for forming from potato dough elongate bodies that resemble potato pieces suitable for french frying. The machine is arranged to move the dough through spaces between a set of parallel wires, which wires are spaced from one another by amount corresponding to the width of the piece. The length of the spaces determines the length of the potato piece. A second set of parallel wires is supported in registry with the first mentioned set during dough movement; after the dough is moved by an amount corresponding to the thickness of a french fry body, the wires of the second set are moved across the dough to separate potato pieces suitable for french frying. A machine for automatically synchronizing the movement of the dough and the movement of the second set of wires. A french fry potato piece formed by the apparatus which piece is characterized by an uncompressed surface.

3,782,970

PROCESS FOR PRODUCING EMULSIFIED FATS

Tsutomu Tomita, Yachiyo, and Masahiko Mizukoshi, Funabashi, Japan, assignors to Kao Soap Co., Ltd., Tokyo, Japan

No Drawing. Filed Aug. 27, 1971, Ser. No. 175,769

Claims priority, application Japan, Sept. 2, 1970, 45/76,959

Int. Cl. A23d *5/00*

U.S. Cl. 426—363 7 Claims

An emulsified fat composition, useful for baking, is prepared from (1) a first homogeneous solution containing edible oil or fat, (2) a second homogeneous solution containing sucrose fatty acid ester, polyglycerol fatty acid ester or polyoxyethylene sorbitan fatty acid ester, and (3) aqueous sorbitol solution, aqueous invert sugar solution, corn syrup or honey. The composition is prepared by either (A) dissolving (1) into (2) and then mixing with (3), or (B) dissolving (2) into (3) and then mixing with (1), and then quickly cooling and kneading the emulsion.

3,782,971

FOOD EMULSIONS CONTAINING MODIFIED PROTEINS

Johannes Hendrik van Roon, Vlaardingen, Netherlands, assignor to Lever Brothers Company, New York, N.Y.

Continuation-in-part of abandoned application Ser. No. 887,659, Dec. 23, 1969. This application Oct. 19, 1971, Ser. No. 190,510

Claims priority, application Great Britain, Dec. 31, 1968, 61,977/68

Int. Cl. A23d *3/00*

U.S. Cl. 426—185 3 Claims

Aqueous solutions having a pH of about 4.5–6 and containing particular modified proteins are used in the preparation of edible fat emulsions comprising 80–84% of an edible glyceride and having a continuous water phase. The modified protein is a N-acetyl milk protein containing about 20–40% N-acetylamino groups (CH_3—CO—NH—), calculated on the basis of total acetylatable amino groups (NH_2—), which total acetylatable amino groups are the lysine ϵ-amino groups and the α-amino groups of N-terminal amino acids in the milk protein. The modified protein improves the heat-stability of acidic oil-in-water emulsions so that emulsions with a good keepability can be prepared by pasteurization without the use of preservatives.

3,782,972

ESSENCE FOR ENHANCING THE FLAVOR OF CITRUS JUICES

Cederic D. Atkins and John A. Attaway, Winter Haven, Fla., assignors to State of Florida, Department of Citrus

Filed Jan. 26, 1971, Ser. No. 109,922

Int. Cl. A23l *1/02, 1/26*

U.S. Cl. 426—192 16 Claims

An aqueous citrus essence is prepared having an enhanced content of components which contribute to the natural flavor of the citrus juice, particularly certain aldehyde type compounds and a decreased content of components, such as easily oxidized fatty substances, which detract from the flavor of the juice. Preparation of the enhanced citrus essence is accomplished by increasing the alcoholic content of the aqueous phase of the essence so that its capacity for desirable aldehyde type components is increased. The increase in alcoholic content is effected by recirculation under appropriate conditions of temperature and pressure of the aqueous phase of the essence in contact with fresh essence. An apparatus is specifically disclosed for effecting the process of the invention. Enhanced essence produced by the present invention is particularly useful for reconstituting the flavor of citrus juice concentrates such as orange juice.

3,782,973

FLAVORING COMPOSITIONS AND PROCESSES

Alan O. Pittet, Atlantic Highlands, and Eugene W. Seitz, Middletown, N.J., assignors to International Flavors & Fragrances Inc., New York, N.Y.

No Drawing. Continuation-in-part of application Ser. No. 69,505, Sept. 3, 1970. This application July 28, 1971, Ser. No. 166,971

The portion of the term of the patent subsequent to Aug. 29, 1989, has been disclaimed

Int. Cl. A23l *1/26*

U.S. Cl. 426—175 18 Claims

Processes for the preparation of reaction products of cyclic ketones and sulfur-free amino acids; the reaction products so produced; use of the reaction products to alter the flavor and/or aroma of consumable materials; and compositions containing such reaction products adapted to alter the flavor and/or aroma of consumable materials.

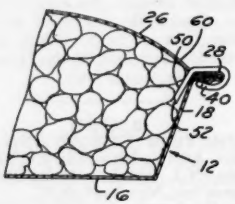
3,782,974
DIETETIC SALT SUBSTITUTE COMPOSITION
John Frank Lontz, 515 Eskridge Drive, Wilmington, Del. 19809, and Constance Anthony D'Alonzo, late of Wilmington, Del., by Shirley Bryant D'Alonzo, executrix of said Constance Anthony D'Alonzo, deceased
No Drawing. Filed Aug. 2, 1971, Ser. No. 168,454
Int. Cl. A23l *1/22*
U.S. Cl. 426—229 3 Claims

A specific dietetic salt substitute formulation is provided from a proportionately defined combination of mono-, di- and tri-carboxylic acids comprising respectively ascorbic acid, fumaric acid, and citric acid to furnish a salty taste approximating that of natural sodium chloride and serving to satisfy the gustatory desire and thereby to provide for the therapeutic and preventive diminution of sodium intoxication and excess in hypertension and related health risks.

3,782,975
METHOD OF PRODUCING CURED LOW SODIUM MEAT PRODUCTS
Thadeus B. Zyss, Highland, Calif., assignor of a fractional part interest to Milo Don Appleman, Jr., Los Angeles, Calif.
No Drawing. Continuation-in-part of abandoned application Ser. No. 869,370, Oct. 24, 1969. This application Oct. 1, 1971, Ser. No. 185,896
Int. Cl. A22c *18/00;* A23b *1/02;* A23l *3/34*
U.S. Cl. 426—281 14 Claims

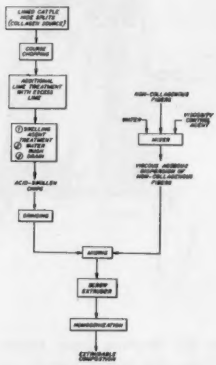
A method is provided for curing fresh primal cuts of meat intended for consumption by those on a low sodium diet which includes the step of subjecting a fresh primal cut to an aqueous curing solution substantially free of sodium and chloride ions and containing about 1.0 to 20% by weight of a water soluble, non-toxic phosphate composition selected from the group consisting of orthophosphate, polyphosphate and pyrophosphate salts of potassium and mixtures thereof.

3,782,976
POPCORN PACKAGE AND HANDLE ASSEMBLY
Gary W. Maier, Mount Clemens, and David H. Jehn, Richmond, Mich., assignors to Dun-Hot, Inc., Mount Clemens, Mich.
Filed Dec. 14, 1971, Ser. No. 207,913
Int. Cl. B65b *25/22*
U.S. Cl. 426—110 4 Claims



The pan and handle assembly includes an open-topped relatively shallow pan which has an annular flange or rim and a wire form handle secured to the rim of the pan. A transparent expandable plastic cover having substantially the same shallow outline as the pan extends across and into the pan, with the peripheral edge of the cover disposed between portions of the rim. A food product is confined between the pan and the cover. The wire handle has a generally arcuate portion engaging different areas of the rim and a handle portion integrally connected to the arcuate portion intermediate the ends thereof. The handle portion extends laterally outwardly from the pan and the ends of the arcuate portion terminate in a pair of generally U-shaped clinch means which receive the rim of the pan and are secured thereto to affix the handle to the pan. One of the U-shaped clinch means is provided with an integral end portion or piercing element which is adapted to engage the outer surface of the cover and puncture the cover when the cover expands in order to permit vapors to escape from the interior of the pan.

3,782,977
METHOD FOR PREPARING COLLAGEN COMPOSITIONS
William E. Henderson and Camilla B. Ross, Hinsdale, Ill., assignors to Union Carbide Corporation, New York, N.Y.
Filed Sept. 1, 1971, Ser. No. 176,863
Int. Cl. A22c *13/00*
U.S. Cl. 426—140 15 Claims



A method for preparing homogeneous formable collagen compositions having non-collagenous fibers uniformly dispersed therein, particularly compositions having a collagen solids content of at least about 6% by weight which includes the steps of (a) preparing a viscous aqueous dispersion of non-collagenous fibers containing a viscosity control agent, (b) preparing a comminuted preswollen collagen mass, and (c) thoroughly mixing said viscous non-collagenous fiber dispersion and said preswollen collagen mass while maintaining the temperature of the admixture below about 35° C.

ERRATUM

For Class 106—47 R see:
Patent No. 3,782,958

3,782,978
ELECTROLESS NICKEL PLATING
Joseph Francis Souza, Everett, Mass., assignor to Shipley Company, Inc., Newton, Mass.
No Drawing. Filed July 6, 1971, Ser. No. 160,087
Int. Cl. C23c *3/02*
U.S. Cl. 106—1 24 Claims

The subject matter of this invention is an electroless nickel plating solution especially formulated for nickel plating aluminum alloys. Aluminum is a difficult metal to plate from an electroless bath because aluminum is active and deposition over aluminum takes place at a rapid rate. As a result, there is excessive gassing at the aluminum interface resulting in migration of smut particles from the aluminum surface into the plating bath. These particles act as nuclei for deposition of nickel resulting

in spontaneous decomposition (triggering) of the bath and loss thereof, as well as plate-out on walls of the plating tank, racks and the like. The invention overcomes these difficulties by addition of an unsaturated carboxylic acid to the solution alone or preferably in combination with a second stabilizer. The acid acts to suppress the rate of deposition over aluminum decreasing gas evolution and migration of smut into the solution. As a result, triggering of the solution is retarded.

3,782,979
SPRAY SHOE POLISH
Milton Nevitt, 51 Royal Way, Manhasset Hills, New Hyde Park, N.Y. 11040
No Drawing. Continuation-in-part of application Ser. No. 189,398, Oct. 14, 1971, now Patent No. 3,704,143. This application Sept. 5, 1972, Ser. No. 286,247
The portion of the term of the patent subsequent to Nov. 28, 1989, has been disclaimed
Int. Cl. C09g *1/10*
U.S. Cl. 106—5 **6 Claims**

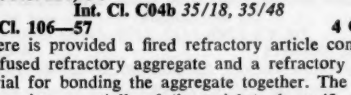
A spray shoe polish that is wax and silicone free. Ethyl cellulose is used as a base. A plasticizer and an inhibiter are employed as are three solvents having different boiling points for providing high gloss, no wax build-up, solubility of previous coatings, crack inhibition and dispersal of previously applied wax.

3,782,980
REFRACTORY POURING TUBE
Terrance M. Smith, Augusta, Ga., assignor to The Babcock & Wilcox Company, New York, N.Y.
Continuation-in-part of abandoned application Ser. No. 22,461, Mar. 25, 1970. This application Feb. 16, 1972, Ser. No. 226,994
Int. Cl. C04b *35/18, 35/48*
U.S. Cl. 106—57 **4 Claims**

There is provided a fired refractory article composed of a fused refractory aggregate and a refractory binder material for bonding the aggregate together. The aggregate consists essentially of (by weight) about 42–48 percent alumina (Al_2O_3) and about 17–23 percent silica (SiO_2) generally in the form of mullite crystals ($3Al_2O_3$—$2SiO_2$), and about 33–39 percent unstabilized zirconia (ZrO_2) dispersed throughout the mullite structure.

The aggregate forms 50 to 80% while the binder forms 50 to 20% of the refractory article. The binder originally contains 10 to 90% of 100 mesh zircon sand, 10 to 90% 325 mesh alumina and 0 to 50% raw clay. In addition suitable plasticizers and organic materials are added for forming purpose and are eliminated during heat treatment of the article.

3,782,981
ALPHA-WOLLASTONITE PINS AND SETTERS
David Rostoker, Corning, N.Y., assignor to Corning Glass Works, Corning, N.Y.
Filed May 1, 1972, Ser. No. 248,862
Int. Cl. C04b *35/22, 35/20*
U.S. Cl. 106—73.5 **1 Claim**



This invention relates to the glaze firing of ceramic and glass-ceramic articles wherein such articles are supported on setter pins within the firing chamber. More particularly, this invention is concerned with the production of such pins with accompanying setters from alpha-wollastonite.

3,782,982
PRODUCTS PREPARED FROM SOLUBLE SILICATE SOLUTIONS
Joseph E. Pierson, Painted Post, and Stanley D. Stookey, Corning, N.Y., assignors to Corning Glass Works, Corning, N.Y.
Filed June 12, 1970, Ser. No. 45,806
Int. Cl. C04b *35/14*
U.S. Cl. 106—75 **6 Claims**

This invention relates to the discovery of a method for producing monolithic porous materials, water insoluble thermoplastic materials, and water soluble resinous materials containing silica (SiO_2) from reaction mixtures of soluble silicates and certain organic compounds by treating said reaction mixtures at moderate temperatures to react the various species therein.

3,782,983
AIR ENTRAINMENT COMPOSITIONS FOR CEMENT MORTARS
Joseph A. Komor, Allentown, Pa., assignor to GAF Corporation, New York, N.Y.
No Drawing. Filed May 18, 1970, Ser. No. 38,539
Int. Cl. C04b *7/02*
U.S. Cl. 106—88 **1 Claim**

A composition for imparting air entrainment to cement mortars comprising salts of sulfate esters derived from: (a) straight or branched chain alcohols containing 0–65% by weight of ethylene oxide, wherein the alcohol portion has 8–10 carbon atoms, and (b) alkyl aryl alcohols containing 0–65% by weight of ethylene oxide, wherein the alkyl group has 2–7 carbon atoms.

3,782,984
ADJUVANTS FOR CEMENTS, MORTARS AND CONCRETES
Pierre Allemand, Lyon, and Christian Hovasse, Decines, France, assignors to Rhone-Progil, Paris, France
No Drawing. Filed June 28, 1972, Ser. No. 267,230
Claims priority, application France, July 2, 1971, 7125116
Int. Cl. C04b *7/02*
U.S. Cl. 106—90 **8 Claims**

Incorporation of a composition comprised of alkali metal acid carbonates, alkali metal salts of hydroxylated organic acids, and alkali metal silicates into portland type cement, and mortars and concretes, etc., containing such cements affords products having an accelerated setting time and which evidence significantly improved mechanical performance and handling characteristics.

3,782,985
LIGHTWEIGHT, HIGH STRENGTH CONCRETE AND METHOD FOR MANUFACTURING THE SAME
John C. Gebhardt, Annapolis, Md., assignor to Cadcom, Incorporated, Annapolis, Md.
No Drawing. Filed Nov. 26, 1971, Ser. No. 202,601
Int. Cl. C04b *7/02, 7/32;* C08h *17/04*
U.S. Cl. 106—97 **10 Claims**

A lightweight, high strength concrete is formed by mixing with water, an admixture of fine aggregate consisting solely of coal fly ash cenospheres and dry hydraulic cement, then solidifying the mixture.

3,782,986
PROCESS FOR PRODUCING PLASTER FROM BYPRODUCT GYPSUM
Gerald H. Vincent, Fort Lauderdale, Fla., assignor to Combustion Engineering, Inc., Windsor, Conn.
No Drawing. Filed Nov. 12, 1970, Ser. No. 89,121
Int. Cl. C04b *11/10*
U.S. Cl. 106—110 **7 Claims**

A method of producing plaster from byproduct or synthetic gypsum is disclosed including milling the gypsum, adding boric acid as a calcination modifier, calcining the

modified gypsum to yield plaster, adding magnesium hydroxide and again milling the plaster to a fine particle size to yield a product with improved properties.

3,782,987

VICINAL HALOHYDRINS PREPARED FROM OLEFINS CONTAINING 25–50 CARBON ATOMS

William A. Bomball, Raymond L. Drury, Jr., Charles S. Nevin, and Ralph C. Witmer II, Decatur, Ill., assignors to A. E. Staley Manufacturing Company, Decatur, Ill.

No Drawing. Filed Jan. 31, 1972, Ser. No. 222,292
Int. Cl. C08h *9/06*
U.S. Cl. 106—271 13 Claims

A preparation of salt-free long-chain vicinal halohydrins by reacting olefin containing 20 to 50 carbon atoms with hypohalite in aqueous emulsion comprising surface active agent at a temperature above the melting point of olefin; compositions comprising long-chain vicinal halohydrins and surface active agents; aqueous emulsions of long-chain vicinal halohydrins and surface active agents; and their use in treating fibrous products.

3,782,988

ASPHALTIC COATINGS

Stephen H. Alexander, St. Louis, Mo., and Arnold J. Hoiberg, Montville, N.J., assignors to The Bank of New York, New York, N.Y.

No Drawing. Continuation-in-part of abandoned application Ser. No. 616,489, Feb. 16, 1967, which is a continuation-in-part of abandoned application Ser. No. 223,819, Sept. 14, 1962. This application Nov. 6, 1969, Ser. No. 874,669
Int. Cl. C08h *13/00, 17/02;* C09d *3/24*
U.S. Cl. 106—282 6 Claims

An asphalt coating composition comprising 50 to 75% by weight of a catalytically air-blown asphalt with a penetration of 40 to 60 mm./10 and a softening point of 135 to 170° F., 15 to 50% by weight of an asphalt solvent, 5 to 20% by weight of short asbestos fibre and 5 to 15% by weight of expanded vermiculite.

3,782,989

POLYMERIC BASED COMPOSITION

Fred E. Mansur, Toledo, Ohio, assignor to Owens-Illinois, Inc.

No Drawing. Original application May 16, 1969, Ser. No. 825,410, now Patent No. 3,625,733, dated Dec. 7, 1971. Divided and this application Dec. 31, 1970, Ser. No. 103,300
Int. Cl. C08h *17/28;* C09d *3/60*
U.S. Cl. 106—285 11 Claims

There is disclosed the preparation of a polymeric based composition comprising a finely divided, particulate inorganic material dispersed in a cyclic isoprenoid solvent and a low molecular weight, low vapor pressure, liquid polymer, said polymer having a relatively constant viscosity and thixotropic character and capable of being decomposed or pyrolyzed completely to gaseous products at a relatively low temperature without forming a carbonaceous or like residue having a deleterious effect(s) in the application of the composition to a substrate.

3,782,990

PROCESS FOR GELLING TRIARYL PHOSPHATES AND RESULTANT PRODUCTS

Jacob Rosin, Maplewood, N.J., assignor to Chris-Craft Industries, Inc.

No Drawing. Filed Apr. 7, 1972, Ser. No. 242,207
Int. Cl. C09k *3/22*
U.S. Cl. 106—287 S 11 Claims

This invention relates to the process of making gelled triaryl phosphate esters which comprises forming an acidic composition comprising a colloidal solution of silica substantially uniformly distributed in a triaryl phosphate ester and transforming the colloidal solution to a gel by neutralizing the acidity, and to certain of the products made by the process.

3,782,991

ALUMINUM SULFATE AND CALCIUM SULFATE ADDITIVES FOR IMPROVING THE QUALITY OF CEMENT, MORTAR AND CONCRETE AND METHOD FOR THE PRODUCTION OF SUCH IMPROVED PRODUCTS

Theodor Burge, Zurich, Switzerland, assignor to Sika AG, Zurich, Switzerland

No Drawing. Filed May 11, 1971, Ser. No. 142,349
Claims priority, application Austria, May 12, 1970, A 4,250/70
Int. Cl. C04b *13/22, 13/24, 31/02*
U.S. Cl. 106—315 17 Claims

An additive for improving the properties of building materials, such as cement, concrete and mortar, especially for increasing the early strength, the ability to carry out concreting at low temperatures and for volume control, without impairing the other qualitative properties of the building material, wherein the additive, apart from extenders and/or other additive substances consists of calcinated, anhydrous or water free aluminum sulfate. Techniques are also disclosed for producing the novel additive as well as for producing such building materials with improved properties.

3,782,992

CEMENT SET RETARDING COMPOSITION AND METHOD

Hiroshi Uchikawa, Funabashi, and Shunichiro Uchida, Tokyo, Japan, assignors to Onoda Cement Co., Ltd., Onoda-shi, Yamaguchi-ken, Japan

Filed Dec. 23, 1971, Ser. No. 211,307
Claims priority, application Japan, Dec. 29, 1970, 46/121,500
Int. Cl. C04b *3/22, 7/00, 13/00*
U.S. Cl. 106—315 4 Claims

A hydraulic cement composition comprises (a) the clinker containing 5–60% by weight of

$$11CaO \cdot 7Al_2O_3 \cdot CaX_2$$

(X represents halogen atom), more than 5% by weight of $3CaO \cdot SiO_2$ solid solution, and further $2CaO \cdot SiO_2$ solid solution and $4CaO \cdot Al_2O_3 \cdot Fe_2O_3$

$$(4CaO \cdot Al_2O_3 \cdot Fe_2O_3$$

represents

$$2CaO \cdot Fe_2O_3 \cdot 6CaO \cdot 2Al_2O_3 \cdot Fe_2O_3$$

system solid solution); (b) anhydrite with or without hemihydrate and (c) at least one of sulfates, nitrates and chlorides of potassium, sodium, magnesium, calcium, aluminum or ammonium (excepting $CaSO_4 \cdot 2H_2O$, $CaSO_4$ and $CaSO_4 \cdot \frac{1}{2}H_2O$), whereby the anhydrite is contained in an amount that Al_2O_3/SO_3 weight ratio of Al_2O_3 in the clinker and SO_3 in the anhydrite is 0.7–1.8 and hemihydrate gypsum is contained less than 5% by weight as SO_3.

3,782,993

METHOD FOR THE PREPARATION OF SMALL MEDICAMENT PARTICLES

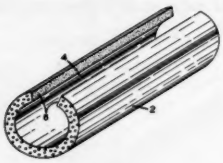
Gerhart Rothgang, Traisa Uber Darmstadt, and Gerhard Simon, Darmstadt, Germany, assignors to Rohm GmbH, Darmstadt, Germany

No Drawing. Filed Nov. 19, 1971, Ser. No. 200,585
Claims priority, application Germany, Nov. 25, 1970, P 20 57 853.4
Int. Cl. B44d *1/16*
U.S. Cl. 117—100 A 5 Claims

A method for forming medicated particles by alternately applying portions of a liquid and of a solid powdered medicament, insoluble in said liquid, to an agitated seed material, and drying said particles only after all said portions have been applied. If required, a liquid-soluble binder for said medicament may be present, either

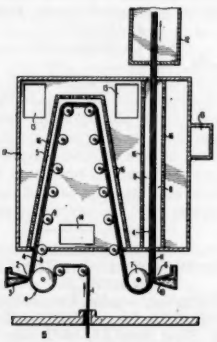
dissolved in the liquid or admixed as a powder with the medicament. Each portion of liquid is within the "critical liquid uptake" region of the powder portion next applied, said region being empirically determined for each system of liquid and medicament (and, if necessary, binder). Said region encompasses those mixtures of liquid and solid system components which have a consistency between stickiness, on the one hand, and a tendency to crumble, on the other.

3,782,994
METHOD FOR APPLYING ADHESIVE TO THE EDGES OF A SLIT TUBE
John J. Doherty, Braintree, Mass., assignor to Armstrong Cork Company, Lancaster, Pa.
Filed May 13, 1971, Ser. No. 143,119
Int. Cl. B41k *3/68*
U.S. Cl. 117—4 **1 Claim**



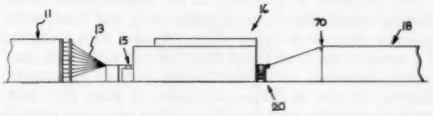
Foamed tubular insulation is provided with a slit down its longitudinal length so that it may be slid over a pipe. The apparatus herein opens up the tubing so that an adhesive coater may apply an adhesive to both edges of the slit in the tubing. A flattening structures opens up the tube so that the two surfaces to be coated are in the same horizontal plane and a roll coating structure then applies adhesive to the two edges in the same plane. The adhesive is permitted to dry and is then later solvent actuated when it is to be utilized to fasten the two edges together.

3,782,995
METHOD OF COATING BOTH SURFACES OF A WEB
Hisashi Takimoto, Minoru Minoda, and Akira Takagi, Kanagawa, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan
Filed July 6, 1970, Ser. No. 52,496
Claims priority, application Japan, July 3, 1969, 44/52,719
Int. Cl. B44d *1/02*
U.S. Cl. 117—34 **6 Claims**



A method of coating both surfaces of a flexible web comprising coating a colloidal solution on a first surface of said flexible web, cooling and gelling said colloidal solution coated on said first surface of said web, supporting said web with a stationary roller which is in contact with said colloidal solution on said first surface of said web, and coating a colloidal solution on the second surface of said flexible web where said web is supported by said stationary roller.

3,782,996
METHOD OF TREATING TACKY STRAND MATERIAL
James C. Belue, Sylvania, Ohio, and Robert S. Schaefer, Huntingdon, Pa., assignors to Owens-Corning Fiberglas Corporation
Filed Apr. 16, 1968, Ser. No. 721,777
Int. Cl. B44d *1/092, 1/14, 5/08*
U.S. Cl. 117—45 **6 Claims**



Strand material of tacky disposition is treated by application of a room temperature solidified lubricant material under conditions as to yield a solid, film-like layer of the material deposited on the strand sufficiently coextensive as to avoid surface-to-surface contact whereby the continuous length of material wound on spools or the like may be withdrawn therefrom rapidly.

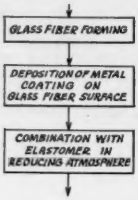
3,782,997
METHOD FOR SEALING ANODIZED BERYLLIUM COMPONENTS TO IMPROVE DIELECTRIC AND CORROSION RESISTANT PROPERTIES
Daniel G. Daly, New York, N.Y., and Gerardo A. Ritacco, Belleville, N.J., assignors to The Bendix Corporation
No Drawing. Filed Dec. 14, 1970, Ser. No. 98,084
Int. Cl. B44d *1/34*
U.S. Cl. 117—49 **7 Claims**

Anodized beryllium components are cleaned and baked and then impregnated with a suitable dielectric material after which the components are cured for sealing existing porosity and for thereby improving dielectric and corrosion resistant properties of the components.

3,782,998
METHOD OF INSULATING COLD SUBSTRATES AND THE INSULATED SUBSTRATES
Albert C. Condo, Newtown Square, Pa., and Clinton A. Reph, Amherst, Ohio, assignors to Atlantic Richfield Company, New York, N.Y.
No Drawing. Filed Nov. 30, 1971, Ser. No. 203,424
Int. Cl. B29d *27/00;* **B32b** *27/40*
U.S. Cl. 117—66 **19 Claims**

Method of insulating cold substrates by providing a first high density foam layer on the substrate which in turn provides a warm surface for depositing a second insulating layer of polyurethane foam on the substrate. In a further embodiment, the opposite surface of the substrate to that being insulated is temporarily insulated with a non-foam insulating material prior to applying the first layer to the substrate to slow dissipation of heat through the substrate.

3,782,999
GLASS FIBER REINFORCED ELASTOMERS
Alfred Marzocchi, Cumberland, R.I., assignor to Owens-Corning Fiberglas Corporation
Filed July 7, 1971, Ser. No. 160,388
Int. Cl. B32b *15/14, 17/06;* **C23c** *13/00*
U.S. Cl. 117—71 **10 Claims**

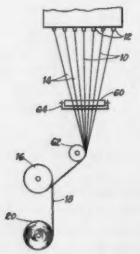

GLASS FIBER FORMING
DEPOSITION OF METAL COATING ON GLASS FIBER SURFACE
COMBINATION WITH ELASTOMER IN REDUCING ATMOSPHERE

This invention is addressed to the improvement in the bonding relationship between glass fibers and elastomeric materials wherein glass fibers are provided with a coating of a nascent metal and then combined directly with elastomeric materials, or further coated with an elastomeric material for use in the manufacture of glass fiber reinforced elastomeric products. The coating steps take place in a non-oxidizing atmosphere, and preferably a reducing atmosphere.

3,783,000
METHOD FOR PREPARING WATER-PROOF ASPHALT MATERIALS
Takashi Takase, Narashino, Tsunekazu Hayashi, Tokyo, and Hirokazu Saitoh, Ohmiya, Japan, assignors to Mitsuboshi-Sangyo Co., Ltd., Tokyo, Japan
No Drawing. Filed June 9, 1971, Ser. No. 151,571
Claims priority, application Japan, June 11, 1970, 45/49,845, 45/49,846, 45/49,847
Int. Cl. C08h *13/00*
U.S. Cl. 117—21 **5 Claims**

Granular, powdery and flaky asphalts are used for paving road surfaces, preparing water-proof roofing materials and filling joints between blocks, as well as other uses. This asphalt may be mixed with aggregates at the work site rather than at an asphalt mixing plant.

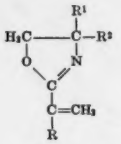
3,783,001
TREATED GLASS FIBERS FOR GLASS FIBER-ELASTOMERIC PRODUCTS AND METHOD
Alfred Marzocchi, Cumberland, R.I., assignor to Owens-Corning Fiberglas Corporation
Filed Jan. 11, 1971, Ser. No. 105,199
Int. Cl. B32b *25/02, 25/14, 17/10*
U.S. Cl. 117—72 **21 Claims**



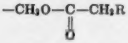
This invention is addressed to the treatment of glass fibers to improve the bonding relationship between the glass fibers and elastomeric materials when the glass fibers are combined with elastomeric materials in the manufacture of glass fiber-reinforced elastomeric products wherein glass fibers are first treated with a hot melt of an elastomer, a resin or mixtures thereof, preferably while the glass fibers are in a nascent state, to provide a thin coating on the individual glass fibers, and a bundle formed of the thus treated glass fibers is thereafter impregnated with an elastomer compatible material to provide a glass fiber bundle in which the individual fibers have a thin coating on the surfaces thereof formed from the hot melt, and an impregnant contained in the glass fiber bundle.

3,783,002
METHOD FOR COATING STEEL
Robert F. Purcell and David K. Sausaman, Terre Haute, Ind., assignors to Commercial Solvents Corporation
No Drawing. Filed Jan. 14, 1972, Ser. No. 218,018
Int. Cl. B32b *15/08;* **B44d** *1/36*
U.S. Cl. 117—75 **12 Claims**

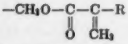
A process for coating steel by applying thereto a monomer or partial polymer of a vinyl oxazoline, represented by the formula



where R is an alkyl or alkenyl group of 1 to 20 carbon atoms and R^1 and R^2 are selected from the group consisting of methyl, ethyl, hydroxymethyl, or the acyloxymethyl group represented by the formula



or the vinyl acyloxymethyl group represented by the formula



heating to effect further polymerization, applying thereto a solution or dispersion of a vinyl halide polymer, copolymer, or terpolymer and heating to effect evaporation of the solvent or coalescence of the dispersion.

3,783,003
PROCESS FOR PRODUCING A RESIN-COATED PAPER AS A SUPPORT FOR A PHOTOGRAPHIC PAPER
Tsuneyasu Matsuhisa and Yoshiaki Nagai, Kanagawa, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan
No Drawing. Filed June 17, 1971, Ser. No. 154,161
Claims priority, application Japan, June 17, 1970, 45/52,607
Int. Cl. B44d *1/16*
U.S. Cl. 117—76 P **3 Claims**

A resin-coated paper as a support for a photographic paper, which has good adhesion between the paper and the resin layers and gives photographic paper free from fogging, is prepared by the extrusion coating in which the first resin is coated at an extrusion temperature over 320° C. on the side of the paper to be coated with the photographic emulsions and then the second resin is coated at a temperature under 300° C. on the first resin layer.

3,783,004
METHOD OF FORMING A FLAT COATED SURFACE
Gordon M. Parker, Apollo, Pa., assignor to PPG Industries, Inc., Pittsburgh, Pa.
No Drawing. Filed Sept. 21, 1971, Ser. No. 182,559
Int. Cl. B44d *1/50*
U.S. Cl. 117—93.31 **18 Claims**

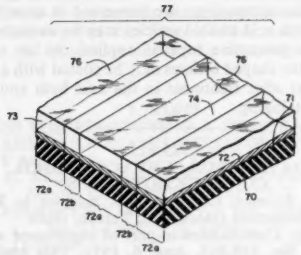
A film or coating having a wrinkled surface is prepared by subjecting a substantially solventless, actinic light-

sensitive, ionizing irradiation-sensitive material to actinic light in an inert atmosphere and subsequently subjecting the material to ionizing irradiation. The preferred films or coatings are prepared from polyacrylates or unsaturated polyester resins.

3,783,005
METHOD OF DEPOSITING A METAL ON A SURFACE OF A NONCONDUCTIVE SUBSTRATE

John Thomas Kenney, Lawrence Township, Mercer County, N.J., assignor to Western Electric Company, Incorporated, New York, N.Y.

Filed Feb. 4, 1972, Ser. No. 223,522
Int. Cl. C23c *3/02*
U.S. Cl. 117—212 **36 Claims**



A method of depositing a metal on a surface of a nonconductive substrate is disclosed. A surface of the substrate is first sensitized with a wetting-sensitizer comprising a sensitizing species, e.g., Sn^{+2}, combined with an aqueous colloidal wetting solution, selected from among solutions revealed in application Ser. No. 8,022, filed Feb. 2, 1970. Alternatively, the surface may be first rendered hydrophilic by treating the surface with the colloidal wetting solution, followed by sensitization with a non-wetting sensitizer. The sensitized surface is activated and then exposed to an electroless plating bath. In a second embodiment, the substrate surface is first coated with a wetting-photopromoter comprising a positive photopromoter species, including one selected from among those revealed in U.S. Pat. 3,562,005, combined with the aqueous colloidal wetting solution. Again, alternatively, the substrate may be first rendered wettable by treatment with the colloidal wetting solution whereafter a conventional (non-wetting) photopromoter solution (positive or negative) is applied thereto. The photopromoter-coated surface is selectively exposed to a source of ultraviolet radiation to produce a pattern comprising at least one area of the surface capable of reducing a precious metal from a precious metal salt. The exposed substrate is then immersed in a solution comprising a salt of the precious metal to obtain a precious metal pattern. The precious metal pattern may then be exposed to an electroless plating bath to deposit electroless metal thereon.

3,783,006
COATED CONTAINER AND METHOD OF COATING

Ernest A. Hahn, Plainfield, Ill., Rowland S. Hartzell, Gibsonia, Pa., and Gene Gerek, Oswego, Ill., assignors to PPG Industries, Inc., Pittsburgh, Pa.

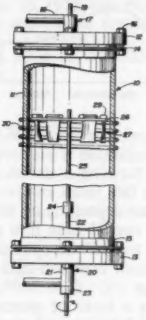
No Drawing. Continuation-in-part of abandoned application Ser. No. 18,333, Mar. 10, 1970. This application Dec. 29, 1971, Ser. No. 213,834
Int. Cl. B44d *1/50, 1/36*
U.S. Cl. 117—93.31 **18 Claims**

Metal containers for food and beverages have their interior surfaces coated with a composition comprising an acrylic syrup comprising one or more thermoplastic acrylic polymers and one or more acrylic monomers wherein the composition is cured by ionizing irradiation or actinic light. The coatings have a unique combination of properties including excellent taste properties and superior adhesion to the metal container.

3,783,007
METAL CARBONITRILE COATINGS

John A. Bloom, Dallas, and Gene F. Wakefield, Richardson, Tex., assignors to Texas Instruments Incorporated, Dallas, Tex.

Continuation of abandoned application Ser. No. 850,351, Aug. 15, 1969. This application Oct. 1, 1971, Ser. No. 185,872
Int. Cl. C23c *11/18*
U.S. Cl. 117—95 **9 Claims**



Metal carbonitride coatings such as titanium carbonitride, are produced upon the surface of an object by a vapor phase deposition process utilizing reactant compounds containing carbon, nitrogen, and the metal. The reactant compounds are contacted upon the surface of the heated substrate under conditions wherein the atmosphere of the reaction zone around the substrate is maintained at a temperature below the decomposition temperature of the reactant compounds so that substantially no vapor phase reaction therebetween will occur before contact is made with the heated substrate.

3,783,008
PROCESS FOR PREPARING COATED DETERGENT PARTICLES

Helmut H. Weldes, Havertown, and Eric W. Vessey, Springfield, Pa., assignors to Philadelphia Quartz Company, Philadelphia, Pa.

No Drawing. Filed May 4, 1971, Ser. No. 140,305
Int. Cl. B44d *1/02*
U.S. Cl. 117—100 A **2 Claims**

This invention involves a process for making an improved detergent composition. It consists of spraying a slurry of some ingredients of the composition onto other ingredients. Specifically, a composite of an inorganic salt with an alkali metal silicate with or without a sequestering agent is coated with a slurry of the remaining detergent ingredients and then the coated material is dried to give a free-flowing detergent. The resulting composition is very stable, containing a very low concentration of insoluble material and the concentration of insolubles does not increase on storage.

3,783,009

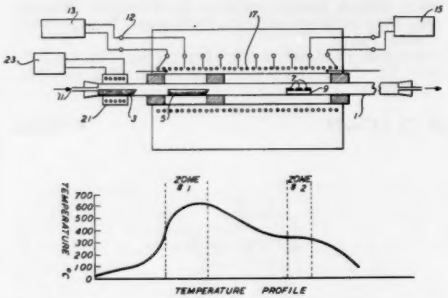
METHOD FOR IMPROVING PERFECTION OF EPITAXIALLY GROWN GERMANIUM FILMS

Ralph F. Tramposch, Amherst, N.Y., assignor to Air Reduction Company, Incorporated, New York, N.Y.

Continuation of abandoned application Ser. No. 726,952, May 6, 1968. This application Feb. 22, 1971, Ser. No. 117,668

Int. Cl. B44d *1/02*

U.S. Cl. 117—106 A 4 Claims



A method for improving the crystalline perfection of epitaxial films of germanium is set forth, which is particularly applicable to forming a device-quality layer on a foreign substrate. In this latter environment, the process is carried out by vapor depositing on the foreign substrate a germanium single crystal base film at temperatures in the range of 800° C. to 825° C., epitaxially vapor depositing a buffer germanium layer on said base film at temperatures in the range 340° C to 360° C., and thereafter epitaxially depositing a layer of germanium at a higher temperature range of 700° C. and above.

3,783,010

REFRACTING, LIGHT PERMEABLE OXIDE LAYER AND METHOD FOR ITS MANUFACTURE

Baptist Wille, Balzers, Liechtenstein, assignor to Balzers Patent- und Beteiligungs Aktiengesellschaft, Balzers, Liechtenstein

Filed Apr. 7, 1971, Ser. No. 132,041

Claims priority, application Switzerland, Apr. 13, 1970, 5,491/70

Int. Cl. C23c *11/00, 13/00*

U.S. Cl. 117—106 R 2 Claims

A highly refracting, light permeable oxide layer on a support, such as a glass plate, comprises oxygen, zirconium and tantalum, the ratio of the number of tantalum atoms to zirconium atoms being in the range of about 1:1 to 1:2.

3,783,011

PROTECTING PLASTICS FROM PHOTODEGRADATION

Jean Chauffoureaux, Brussels, Belgium, assignor to Solvay & Cie, Brussels, Belgium

No Drawing. Filed Dec. 27, 1971, Ser. No. 212,671

Claims priority, application France, Jan. 6, 1971, 7100274

Int. Cl. B01j *1/10*

U.S. Cl. 117—106 R 9 Claims

Protection from photodegradation by solar radiation is imparted to plastics normally subjected to such photodegradation by exposing the plastics to an atmosphere of anti-UV agent in vapor state prior to exposure to solar radiation.

3,783,012

VACUUM METALLIZED POLYOLEFINS

Koh Morita and Teiji Ishii, Yokohama-shi, Kanagawa-ken, Japan, assignors to Chisso Corporation, Osaka-shi, Japan

No Drawing. Filed June 11, 1969, Ser. No. 832,507

Int. Cl. C23c *13/02*

U.S. Cl. 117—107 7 Claims

Vacuum metallizable polyolefin compositions are provided from a blend of a polyolefin and from about 2% to about 60% by weight of a compatible high molecular weight unsaturated material such as a natural rubber or a synthetic elastomer. Prior to vacuum metallizing, shaped articles of the composition are immersed in an acid bath. Thereafter the acid treated articles may be vacuum metallized and a protective topcoat applied. As an optional procedure, the shaped articles may be coated with a primer or undercoat after treatment in the acid bath and before vacuum metallizing.

3,783,013

COATING FOR SURFACES WHICH CONTACT HOT GLASS

Thomas A. Seeman, Oregon, Ohio, assignor to Thomas Industrial Gases, Inc., Toledo, Ohio

No Drawing. Continuation-in-part of abandoned application Ser. No. 169,862, Aug. 6, 1971. This application Mar. 27, 1972, Ser. No. 238,467

Int. Cl. B28b *7/38*

U.S. Cl. 117—127 12 Claims

A composition and method is disclosed for coating metal surfaces which come in contact with hot glass in manufacturing and handling glassware. A dispersion of boron nitride (BN) and monoaluminum phosphate is applied to heated metal surfaces to form a coating which prevents corrosion and glass seizure. The dispersion is applied in an inert volatile liquid, preferably ethylene glycol or water or a combination thereof.

3,783,014

ELECTROLESS COATING OF MOLYBDENUM ON STAINLESS STEELS

John W. Koger, Knoxville, and Eugene J. Lawrence, Alcoa, Tenn., assignors to the United States of America as represented by the United States Atomic Energy Commission

No Drawing. Filed Jan. 18, 1972, Ser. No. 218,817

Int. Cl. C23c *9/10, 17/02*

U.S. Cl. 117—130 R 2 Claims

An adherent coating of molybdenum on stainless steel is obtained by contacting the stainless steel with a molten fluoride salt containing from 1 to 5 weight percent MoF_6.

3,783,015

PROCESS FOR PROTECTING A SUBSTRATE WITH AN ARYLSULFONAMIDE DERIVATIVE INTUMESCENT AGENT

Shirley H. Roth, Highland Park, N.J., assignor to Cities Service Company, New York, N.Y.

No Drawing. Filed Feb. 22, 1972, Ser. No. 228,382

Int. Cl. C09d *5/18*; C09k *3/28*

U.S. Cl. 117—136 8 Claims

Intumescent compositions of the invention comprise certain arylsulfonamidothiazoles, isothiazoles, oxazoles, and isoxazoles, such as 2-sulfanilamidothiazole, 5-sulfanilamidoisothiazole, 2-sulfanilamidooxazole, 5-sulfanilamidoisoxazole, and derivatives thereof. The intumescent agents may be employed in conjunction with additives conventionally used in intumescent compositions. For use in protecting substrates from heat and fire, the intumescent compositions may be applied to the substrates in any suitable manner, such as by electrodeposition, spraying

onto an adhesive substrate, or application of a coating composition comprising the intumescent agent.

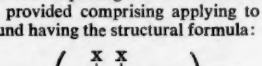
3,783,016

METHOD FOR IMPARTING FLAME RESISTANCE TO FIBROUS MATERIALS

David I. Randall, 417 Dogwood Terrace, and Calvin Vogel, 104 Forks Ave., both of Easton, Pa. 18042

No Drawing. Filed June 1, 1971, Ser. No. 148,881
Int. Cl. C09k *3/28*; C09d *5/18*
U.S. Cl. 117—136 **8 Claims**

Method for imparting flame resistance to fibrous materials is provided comprising applying to said materials a compound having the structural formula:



wherein each X can be independently chloro or bromo or when taken together can form a bond, and the sum of chlorine and bromine atoms in the compound is at least two.

3,783,017

PROCESS FOR PROTECTING A SUBSTRATE WITH AN ARYLSULFONAMIDOTRIAZOLE INTUMESCENT AGENT

Shirley H. Roth, Highland Park, N.J., assignor to Cities Service Company, New York, N.Y.

No Drawing. Filed Feb. 22, 1972, Ser. No. 228,383
Int. Cl. C09d *5/18*; C09k *3/28*
U.S. Cl. 117—136 **6 Claims**

Intumescent compositions of the invention comprise certain arylsulfonamidotriazoles, such as the sulfanilamidotriazoles and derivatives thereof. The intumescent agents may be employed in conjunction with additives conventionally used in intumescent compositions. For use in protecting substrates from heat and fire, the intumescent compositions may be applied to the substrates in any suitable manner, such as by electrodeposition, spraying onto an adhesive substrate, or application of a coating composition comprising the intumescent agent.

3,783,018

PROCESS FOR PROTECTING A SUBSTRATE WITH AN N^4-TRIAZOLYLAMINOARYLSULFONAMIDE INTUMESCENT AGENT

Shirley H. Roth, Highland Park, N.J., assignor to Cities Service Company, New York, N.Y.

No Drawing. Filed Feb. 28, 1972, Ser. No. 230,101
Int. Cl. C09d *5/18*; C09k *3/28*
U.S. Cl. 117—136 **5 Claims**

Intumescent compositions of the invention comprise certain N^4-triazolylaminoarylsulfonamides, such as the N^4-triazolylsulfanilamides and derivatives thereof. The intumescent agents may be employed in conjunction with additives conventionally used in intumescent compositions. For use in protecting substrates from heat and fire, the intumescent compositions may be applied in any suitable manner, such as by electrodeposition, spraying onto an adhesive substrate, or application of a coating composition comprising the intumescent agent.

3,783,019

METHOD FOR PRODUCING ELECTROPHOTOGRAPHIC RECORDING ELEMENTS

Yoshitaka Hashiguchi, Amagasaki-shi, and Shozo Watayama, Fuji-shi, Japan, assignors to Kabushiki Kaisha Kohjin, Tokyo, and Teikoku Kagaku Sangyo Kabushiki Kaisha, Osaka, Japan

No Drawing. Filed June 9, 1971, Ser. No. 151,595
Claims priority, application Japan, June 11, 1970, 45/49,821
Int. Cl. G01d *15/06*; G03c *1/74*
U.S. Cl. 117—201 **6 Claims**

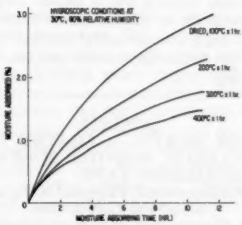
Electrophotographic recording elements which have an excellent light sensitivity and do not receive any influence from the variation in the moisture of the ambient atmosphere, are prepared by dissolving a vinyl compound copolymer (e.g. vinyl acetate-crotonic acid copolymer) which is soluble in an organic solvent (e.g. methanol) and also soluble in water in the presence of a volatile base (e.g. ammonia), in an organic solvent, an organic solvent containing a volatile base or a mixture of less than 5 parts by weight of water, 1 part by weight of an organic solvent and a volatile base; mixing the resultant solution with a diluent mainly of water; and coating a support, e.g. sized paper, with the resultant aqueous dispersion (coating color) containing zinc oxide, the volatile base, the organic solvent and the vinyl compound copolymer.

3,783,020

ANTI-HYGROSCOPIC ARC WELDING COATED ELECTRODE AND THE PROCESS FOR PRODUCING THE SAME

Shinji Kimura, Fujisawa, and Izumi Ichihara and Tsuyoshi Kawase, Kamakura, Japan, assignors to Kobe Steel, Ltd., Kobe, Japan

Filed Dec. 10, 1971, Ser. No. 206,823
Claims priority, application Japan, Dec. 28, 1970, 46/128,610
Int. Cl. B23k *35/00*; C23g *1/00*
U.S. Cl. 117—206 **6 Claims**



An anti-hygroscopic arc welding coated electrode contains, as a binder for the coating material of the electrode, a glass powder having a softening point of from 350° to 550° C., which melts and covers the grains of the coating material, when heated to a temperature above the said softening point, so as to form vitreous films therearound.

3,783,021

CONDUCTING LACQUERS FOR ELECTROPHOTOGRAPHIC ELEMENTS

William C. York, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

Original application Mar. 3, 1969, Ser. No. 803,708, now Patent No. 3,639,121, dated Feb. 1, 1972. Divided and this application Mar. 15, 1971, Ser. No. 124,593
Int. Cl. B44d *1/18*
U.S. Cl. 117—212 **16 Claims**

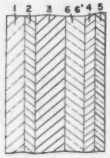
Novel electrically conducting lacquers are coated on the edge of electrophotographic elements to maintain conducting layers at ground potential during charging by providing an electrical path from the conducting layer to a grounding means. Typical conducting lacquers include mixtures of electrically conducting carbon black and graphite in a polymeric resin binder.

3,783,022

ELECTROLUMINESCENT PANEL

Fumio Ueda, Amagasaki-shi, Japan, assignor to Mitsubishi Denki Kabushiki Kaisha, Marunouchi Chiyoda-ku, Tokyo, Japan

Filed Apr. 22, 1971, Ser. No. 136,310
Claims priority, application Japan, Apr. 28, 1970, 45/36,563
Int. Cl. C09k *1/00*; C23c *11/00*; H01j *1/62*
U.S. Cl. 117—215 2 Claims



An electroluminescent panel having a luminescent layer, a high dielectric layer and a back electrode is disclosed. The luminescent layer is composed of an electroluminescent phosphor containing ZnS as an active ingredient and a binder. The high dielectric layer is composed of high dielectric barium titanate and a binder. After coating by vacuum evaporation of aluminum to form a back electrode, a resin such as cyanoethyl sucrose is vacuum impregnated to the luminescent layer and the high dielectric layer by heating.

3,783,023

METHOD OF MAKING A COATED TAPE, AND PARTICULARLY SMOOTH SURFACE MAGNETIC RECORDING TAPE

Gordon P. Hungerford, Palmyra, N.Y., assignor to Mobil Oil Corporation

No Drawing. Continuation-in-part of abandoned application Ser. No. 30,575, Apr. 21, 1970. This application June 8, 1972, Ser. No. 260,874
Int. Cl. H01f *10/00*
U.S. Cl. 117—237 17 Claims

To improve the smoothness of the surface of coated tape, particularly coated magnetic recording tape, a thin film (e.g., 0.02 mm. thick) of polyethylene is applied on top of the wet coating of magnetic particles (e.g., iron oxide particles), in a binder, and solvent, the solvent evaporating through the polyethylene film. When the solvent has evaporated, or almost so, the polyethylene film is stripped off the coating, leaving a smooth glossy surface having improved abrasion resistance and reproduction characteristics. Typical drying conditions are about 21° C., and 45 minutes; the coating may be briefly predried but only for so long that the polyethylene film can still mold the surface of the coating to be flat during the drying process.

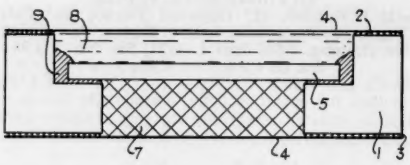
3,783,024

ELECTRIC CELLS AND BATTERIES

John G. Gibson, Derby, and Ronald Holland, Dorset, England, assignors to British Railways Board, London, England

Filed Nov. 23, 1971, Ser. No. 201,273
Claims priority, application Great Britain, Nov. 24, 1970, 55,835/70
Int. Cl. H01m *35/00*
U.S. Cl. 136—6 A 3 Claims

An electric cell of the kind which, at its operating temperature, has liquid alkali metal as negative active material (anode), liquid sulphur material as positive active material (cathode), and a solid electrolyte separating anode and cathode compartments. Electrodes of the cell constitute wall portions, for example end plates, of the anode and cathode compartments respectively and are flexible to accommodate changes in volume of the materials in said compartments during discharge of the cell. An electric battery is formed by a plurality of the



cells stacked together end to end with the cells electrically in series in which case a single electrode may be disposed between adjacent cells to constitute an end plate for both said adjacent cells.

3,783,025

METHOD OF MAKING A THIN CADMIUM OXIDE ELECTRODE WITH AN IONIC POLYMER AND SUBSEQUENT REMOVAL OF THE POLYMER

Randall N. King, Johnstown, and David W. Skelly, Ballston Lake, N.Y., assignors to General Electric Company

Original application Nov. 12, 1969, Ser. No. 875,918, now abandoned. Divided and this application Oct. 21, 1970, Ser. No. 82,845
Int. Cl. H01m *35/30*
U.S. Cl. 136—76 1 Claim

A thin electrode is disclosed which has an electrically conductive sheet, and a thin layer of an active material of a metallic oxide, a metallic hydroxide, or a metal adhering to each major face of the sheet. A method is also described for making such electrodes. These electrodes are useful for small volume, small weight applications such as anodes in batteries for squibs and space vehicles.

3,783,026

AIR-DEPOLARIZED CELLS UTILIZING A CYANATE OR THIOCYANATE-CONTAINING ELECTROLYTE

Karl V. Kordesch, Lakewood, Ohio, assignor to Union Carbide Corporation, New York, N.Y.

Filed Mar. 9, 1971, Ser. No. 122,465
Int. Cl. H01m *29/04*
U.S. Cl. 136—86 A 14 Claims

Air-depolarized cells are disclosed which have an improved aqueous electrolyte. The electrolyte, which is neutral, slightly acid, or slightly alkaline, contains: (a) a salt such as a halide of an alkali metal, alkaline earth metal, aluminum, zinc, or ammonia; and (b) a cyanate or thiocyanate salt. The air-depolarized cells of the invention alleviate the problem of carbonation with attendant plugging of the pores in the cathode that is often encountered with air-depolarized cells utilizing strong alkaline electrolytes.

3,783,027

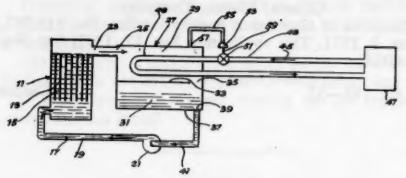
APPARATUS AND METHOD FOR MAKING CHLORINE HYDRATE FROM HIGH ENERGY DENSITY BATTERY ELECTROLYTE AND CHLORINE

Harry K. Bjorkman, Birmingham, Mich., assignor to Udylite Corporation, Warren, Mich.

Filed Nov. 18, 1971, Ser. No. 200,046
Int. Cl. H01m *27/14*
U.S. Cl. 136—86 C 11 Claims

An apparatus for making chlorine hydrate from an aqueous medium such as a solution of zinc chloride, and chlorine, despite varying feed rates, concentrations, proportions and temperatures of the solution and the chlorine, includes a vessel having an inlet for addition of the

solution and chlorine and an outlet for removal of the medium, upper and lower zones in the vessel, the upper one of which is for gaseous chlorine and the lower one of which holds the aqueous medium before discharge, and a cooling coil, pipe or other heat transfer means in the upper zone adapted to cool the chlorine and moisture in contact with it so as to form chlorine hydrate. A pressure sensor is present in the upper zone and in response to an excess of chlorine, which causes an increase in pressure in



the zone, the sensor actuates a coolant-controlling valve to increase the feed of coolant to the heat transfer means, thereby removing more chlorine from the zone, as chlorine hydrate, and reducing the pressure. The reverse action takes place when the chlorine content and related pressure are too low. The chlorine-solution feed to the vessel is usually of chlorine and electrolyte from a high energy density secondary battery during a charge cycle and the solution removed from the lower zone of the present vessel is returned to such cell.

3,783,028

FUEL CELL AND APPARATUS FOR WATER REMOVAL BY EVAPORATING THE WATER FROM THE ELECTROLYTE OF FUEL ELEMENTS

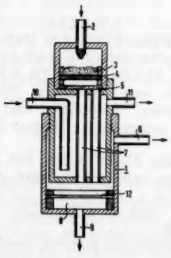
Herbert Cnobloch, Hans Kohlmuller, and Manfredo Marchetto, Erlangen, Germany, assignors to Siemens Aktiengesellschaft, Erlangen, Berlin and Munich, Germany

Continuation of abandoned application Ser. No. 88,553, Nov. 12, 1970. This application Apr. 26, 1972, Ser. No. 247,902

Claims priority, application Germany, Nov. 12, 1969, P 19 56 726.1

Int. Cl. H01m *27/14*

U.S. Cl. 136—86 C **2 Claims**



A process for the removal of water by vaporizing the water from the electrolyte of fuel cell elements, wherein the hydrogen containing fuels are reacted and at least one reactant is produced through a preceding exothermal reaction. The heat energy which occurs during the exothermal reaction is used for the vaporization of the water. Apparatus for carrying out the process is also described.

3,783,029

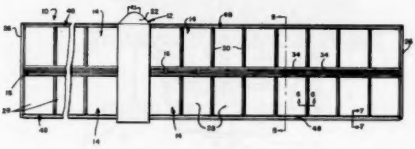
SELF-ERECTING AND RIGIDIZING DEPLOYABLE PANEL AND PANEL ASSEMBLY

Paul A. Dillard, Littleton, Colo., and Clyde E. Williamson, Los Angeles, Calif., assignors to TRW Inc., Redondo Beach, Calif.

Filed Sept. 21, 1970, Ser. No. 73,732

Int. Cl. H01l *15/02*

U.S. Cl. 136—89 **14 Claims**



A deployable panel for deployable solar arrays and other deployable structures. The panel has a number of panel sections hinged edge-to-edge along hinge lines normal to the longitudinal panel edges and thin walled resilient tubular beams secured to the panels along edges of the panel sections. The panel is foldable to a compact stowage configuration wherein the panel sections are disposed in confronting face-to-face relation with the beams folded and flattened, such that the beams store elastic strain energy for aiding extension of the panel to a generally flat unfolded configuration wherein the beams rigidize the panel. The beams may provide electrical bus conductors for electrical elements, such as solar cells, on the panel.

A deployable panel structure embodying a pair of the panels and an intervening deployment boom for extending the panels from folded to unfolded configuration.

3,783,030

GALVANIC ELEMENT

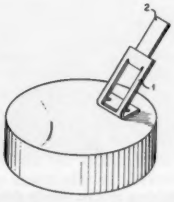
Werner Tietze, Hagen, Germany, assignor to Varta AG, Frankfurt am Main, Germany

Filed Mar. 13, 1972, Ser. No. 234,019

Claims priority, application Germany, Mar. 16, 1971, G 71 09 863.0

Int. Cl. H01m *5/00*

U.S. Cl. 136—134 P **3 Claims**



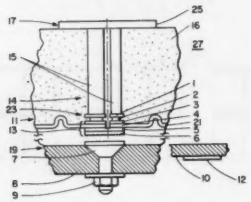
Galvanic element includes an electrical conductor formed of an electrically conductive base material having an incision therein defining a tongue-shaped member bendable out of the incision.

3,783,031

METHOD FOR PRODUCING EVAPORATION INHIBITING COATING FOR PROTECTION OF SILICON-GERMANIUM AND SILICON-MOLYBDENUM ALLOYS AT HIGH TEMPERATURES IN VACUUM

Pao J. Chao, Allendale, N.J., assignor to the United States of America as represented by the United States Atomic Energy Commission

Filed June 4, 1971, Ser. No. 150,942
Int. Cl. H01v 1/02
U.S. Cl. 136—237 5 Claims



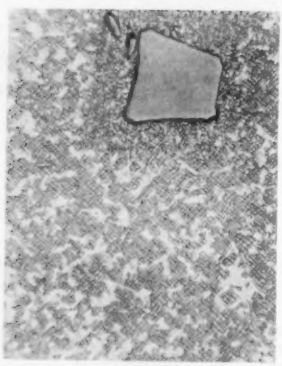
Method for protecting Si—Ge and Si—Mo alloys for use in thermocouples by coating the alloys with silicon to inhibit the evaporation of the alloys at high temperatures in a vacuum. Specific means and methods are provided.

3,783,032

METHOD FOR PRODUCING DIRECTIONALLY SOLIDIFIED NICKEL BASE ALLOY

James L. Walker, Schenectady, and Thomas F. Sawyer, Ballston Lake, N.Y., assignors to General Electric Company

Filed July 31, 1972, Ser. No. 276,752
Int. Cl. C22f 1/10
U.S. Cl. 148—3 4 Claims



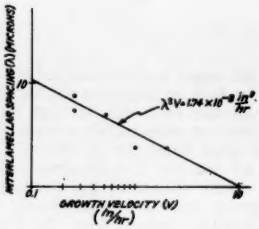
A method of making a cast body from a nickel base alloy having improved stress rupture strength is provided. The method involves forming a nickel base alloy containing a carefully controlled combination of gamma prime forming elements Al, Ti and Ta along with a critical amount of Cr, pouring the molten alloy into a mold and directionally solidifying it into a cast body, removing the low melting segregated phases from the directionally solidified cast body by a dissolution heat treatment to permit the segregated phases to dissolve in solid solution without incipient melting, and cooling the cast body to room temperature.

3,783,033

RAPID SOLIDIFICATION TO IMPROVE THE OXIDATION RESISTANCE OF DIRECTIONALLY SOLIDIFIED EUTECTIC ALLOYS

Lemuel A. Tarshis, Latham, N.Y., assignor to General Electric Company

Continuation of abandoned application Ser. No. 119,587, Mar. 1, 1971. This application Jan. 17, 1973, Ser. No. 324,365
Int. Cl. C22c 19/00
U.S. Cl. 148—32 5 Claims



In a directionally solidified multi-phase eutectic system, high-temperature oxidation resistance of a directionally-solidified alloy is improved by controlling the solidification rate (V) within a defined range, greater than about 2 inches per hour, but less than the rate (V_{max}) which produces cellular breakdown in the microstructure of the alloy. This maximum velocity to avoid cellular breakdown is defined generally by the equation: $V_{max}=KG$, wherein G is the temperature gradient in the solidifying liquid ahead of the solidifying interface thereof; and K is a constant. For the particular system Ni_3Al—Ni_3Cb eutectic composition disclosed, K is about 0.02 (in.²/hr.° C.). The maximum inter-lamellar spacing (λ_{max}) of the microstructure to achieve the improved high temperature oxidation resistance is controlled to be not greater than about 9.33×10^{-5} inches.

3,783,034

METHOD FOR FORMING AN INSULATING FILM OF GOOD PUNCHING CHARACTERISTICS ON ELECTRICAL STEEL SHEETS AND STRIPS

Minoru Kitayama and Motoharu Nakamura, Himeji, Masanobu Inaoka, Takasago, and Hiroshi Okada, Himeji, Japan, assignors to Nippon Steel Corporation, Tokyo, Japan

Filed Aug. 25, 1971, Ser. No. 174,719
Claims priority, application Japan, Aug. 28, 1970, 45/75,361
Int. Cl. C23f 7/26
U.S. Cl. 148—6.2 6 Claims

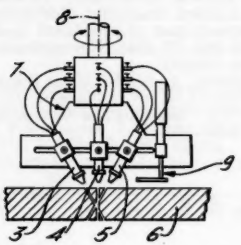
A process for producing a stable insulating film of good punching characteristics on an electrical steel sheet and strip, which comprises dissolving at least one compound selected from the group consisting of oxides, hydroxides and carbonates of divalent metals to at least about their dissolving limit in a solution containing at least one compound selected from the group consisting of chromic acid

and bichromates, adding an emulsion type resin to the solution, and coating the thus obtained treating solution onto a steel sheet and then baking the coated sheet.

3,783,035
COATING FERROUS METALS
Douglas H. Eisenlohr, Guilford, and Henry W. Schiessl, Northford, Conn., assignors to Olin Corporation
No Drawing. Filed May 15, 1972, Ser. No. 253,474
Int. Cl. C23f 7/04
U.S. Cl. 148—6.14 R 10 Claims

Protective coatings are applied to ferrous metals by:
(A) Etching the metal first in nitric, then in hydrofluoric acid;
(B) Forming a magnetite coating on the etched metal by heating in contact with aqueous hydrazine, and
(C) Applying an organic coating to the magnetite-coated ferrous metal.

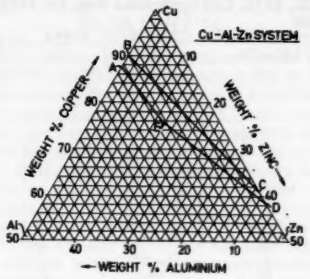
3,783,036
METHOD OF CUTTING THE EDGE OF STRUCTURAL SHEET OR PLATE MEMBERS ON AUTOMATICALLY CONTROLLED CUTTERS
Borre Bengt Ulrichsen, Kongsberg, Norway, assignor to A/S Kongsberg Vapenfabrikk, Kongsberg, Norway
Filed Oct. 21, 1971, Ser. No. 191,484
Claims priority, application Norway, Oct. 21, 1970, 3,983/70
Int. Cl. B23k 7/10
U.S. Cl. 148—9 R 6 Claims



A varying bevel angle of an inclined edge of a steel plate is provided in the same operation as that of cutting the contour of the plate on a numerically controlled blowpipe cutter. A cutter with a rotatable cutter head is used. A blowpipe nozzle is positioned at an angle with the rotational axis of the cutter head and the movement of the head about the axis is controlled both in accordance with information relating to the desired bevel angle and in accordance with the direction of the tangent to the edge in the plane of the plate to be cut.

3,783,037
TREATMENT OF ALLOYS
Greville B. Brook, Beaconsfield, and Roger F. Iles, Ickenham, England, assignors to Fulmer Research Institute Limited, Stoke Poges, Buckinghamshire, England
Filed Nov. 12, 1970, Ser. No. 88,596
Claims priority, application Great Britain, Nov. 12, 1969, 55,482/69; Nov. 14, 1969, 55,969/69
Int. Cl. C22f 1/08, 1/14
U.S. Cl. 148—11.5 R 29 Claims

A method of making a heat-recoverable article in which an alloy comprising an intermetallic compound, which on cooling transforms into a banded martensite by shear with or without working, deformed after appropriate heat treatment so that on reheating it at least partly



resumes its original shape. It is preferred to use a copper-base alloy which transforms into a martensite of pseudo-cubic symmetry.

3,783,038
NITRIDED-OXIDIZED BORONIZED ARTICLES
Ray J. Van Thyne, Oak Lawn, and John J. Rausch, Antioch, Ill., assignors to Surface Technology Corporation, Stone Park, Ill.
No Drawing. Application Mar. 4, 1970, Ser. No. 15,594, now Patent No. 3,674,573, which is a continuation-in-part of application Ser. No. 755,662, Aug. 27, 1968, now Patent No. 3,549,429. Divided and this application Mar. 20, 1972, Ser. No. 236,060
Int. Cl. C22c 29/00; C23c 11/14
U.S. Cl. 148—31.5 1 Claim

Graded nitrided articles, surface modified in alloy composition wherein the surface zone consists of nitrided alloys consisting essentially of (a) one or more metals of the group columbium, tantalum, and vanadium; (b) zirconium and zirconium-titanium mixtures, and (c) one or both metals of the group molybdenum and tungsten. A minor portion of the nitrogen may be replaced by oxygen or boron. Nitrided materials prepared from homogeneous alloys are also included. The materials are characterized by excellent wear and abrasion resistance.

3,783,039
SURFACE DEPLETED NITRIDED MATERIALS
John J. Rausch, Antioch, and Ray J. Van Thyne, Oak Lawn, Ill., assignors to Surface Technology Corporation, Stone Park, Ill.
No Drawing. Application Mar. 4, 1970, Ser. No. 16,595, now Patent No. 3,674,574, which is a continuation-in-part of application Ser. No. 755,658, Aug. 27, 1968, now Patent No. 3,549,427. Divided and this application Mar. 20, 1972, Ser. No. 236,214
Int. Cl. C22c 29/00; C23c 11/14
U.S. Cl. 148—31.5 2 Claims

Graded nitrided articles, surface modified in alloy compositions wherein the surface zone consists of nitrided alloys consisting essentially of (A) one or more metals of the group columbium, tantalum, and vanadium; (B) titanium; and (C) one or both metals of the group molybdenum and tungsten. A minor portion of the nitrogen may be replaced by oxygen or boron. Nitrided materials prepared from homogeneous alloys are also included. The materials are characterized by excellent wear and abrasion resistance.

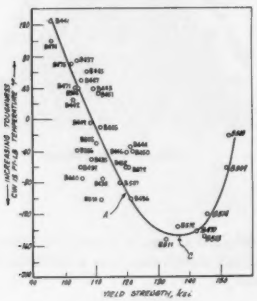
3,783,040
LOW CARBON HIGH STRENGTH STEEL

John B. Ballance, Bedford Heights, and Stephen J. Matas, Independence, Ohio, and Konrad J. A. Kundig, Ridgefield, N.J., assignors to Republic Steel Corporation, Cleveland, Ohio

Continuation of abandoned application Ser. No. 40,483, May 26, 1970. This application Aug. 16, 1972, Ser. No. 281,156

Int. Cl. C22c *39/20, 39/54*

U.S. Cl. 148—36 20 Claims



Low carbon steels having high strength, e.g. for structural plate, comprise molybdenum and/or boron as an ingredient coacting to avoid ferrite-pearlite transformation and a second ingredient, in economical amount, of elements from the class of manganese, nickel, chromium and copper coacting to raise the levels of both strength and toughness simultaneously while affording transformation in the bainite region, such transformation being thereby preferably initiated at a low temperature, so that upon cooling the product directly from a hot rolling operation, e.g. by air cooling, the steel transforms to a microstructure exhibiting a plate-like morphology and having yield strength of at least about 95 k.s.i. and good impact toughness. Need for heat treatment, such as in tempering after quenching, is obviated. Properties can be further enhanced by a minor amount of a third ingredient, for example columbium, which cooperates in attaining desired results.

3,783,041
METHOD OF PRODUCING SEMI-HARD MAGNETIC MATERIALS WITH A PLURALITY OF HEATING AND COOLING STEPS

Tadao Tokushima, Hamamatsu, Japan, assignor to Nippon Gakki Seizo Kabushiki Kaisha, Hamamatsu-shi, Shizuoka-ken, Japan

Continuation of abandoned application Ser. No. 845,140, July 28, 1969. This application Mar. 7, 1972, Ser. No. 232,453

Claims priority, application Japan, July 31, 1968, 43/53,644; Aug. 27, 1968, 43/61,347, 43/61,348

Int. Cl. C22b *19/00*

U.S. Cl. 148—121 12 Claims

A method of producing cheap, mass-producible, and machine workable semi-hard magnetic materials having good magnetic properties merely by casting and heat-treating without cold working, which comprises, after a solution treatment, a plurality of repetitive steps of heating and cooling an alloy containing a plurality of kinds of and required quantities of inexpensive components at temperatures below the Curie temperature, each of the heating temperatures in said steps being higher than the heating temperature of the preceding step. The main contents of the alloy are Fe, Mn, Cu and Ti.

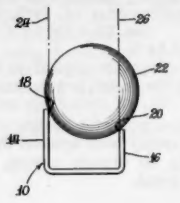
3,783,042
METHOD OF COOLING A SPHERICAL OBJECT

Walter Charles Troy, National City, Calif., assignor to Amsted Industries Incorporated, Chicago, Ill.

Filed July 31, 1972, Ser. No. 276,885

Int. Cl. C21d *9/36*

U.S. Cl. 148—153 4 Claims



A method of uniformly cooling a spherical object, such as a cast metal ball, by rolling it along a pair of spaced tracks having different heights, so that the axis of rotation constantly changes and heat is extracted uniformly from the outer surface.

3,783,043
TREATMENT OF HOT-ROLLED STEEL ROD

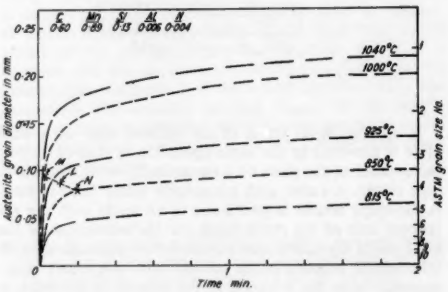
Francis Martin Almond, Rotherham, Edward Albert Shipley, Sprotborough, and Brian Wilfrid Cordon, Retford, England, assignors to The Templeborough Rolling Mills, Limited, Rotherham, Yorkshire, and British Ropes Limited, Doncaster, Yorkshire, England

Continuation-in-part of abandoned application Ser. No. 745,643, July 17, 1968. This application June 24, 1971, Ser. No. 156,223

Claims priority, application Great Britain, July 21, 1967, 33,712/67

Int. Cl. C21d *9/64, 9/52*

U.S. Cl. 148—156 11 Claims



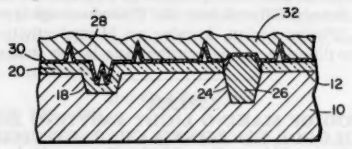
In the treatment of rod travelling at highspeed from a rolling mill and formed into non-concentric overlapping loops on a conveyor, the rod is not positively cooled before it is formed into the overlapping rings, and is allowed to cool naturally on the conveyor until it is only a little above the austenite transformation temperature, so that the austenite grains can grow to maximum size. When it is on the conveyor the rod is cooled by air at a rate of at least 700° C. per minute through the temperature range of 750 to 500° C., with the overall result that the precipitation of grain-boundary ferrite is minimized and finer and more uniform pearlite is produced.

3,783,044

PHOTORESIST KEYS AND DEPTH INDICATOR

Eugene M. Cheskis, Scottsdale, and James B. Price, Phoenix, Ariz., assignors to Motorola, Inc., Franklin Park, Ill.

Filed Apr. 9, 1971, Ser. No. 132,798
Int. Cl. H01l 7/50, 7/00, 5/00
U.S. Cl. 148—175 3 Claims



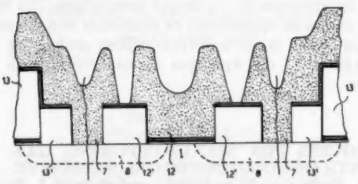
A method is disclosed for providing means for orienting and positioning a photoresist mask on a semiconductor wafer and for indicating the depth of an epitaxial deposit. This means comprises filled holes called keys which are easily noted even though the surface of the wafer is carefully polished. Since the depth of the keys is less by a predetermined amount than the depth of the epitaxial deposit, presence of the keys after the polishing step indicates that the remaining depth of the deposit is great enough to make application of other process steps to the wafer advisable and the keys themselves are used for positioning and orienting such fixtures as masking devices on the surface of the wafer.

3,783,045

PROCESS FOR PRODUCING DISCRETE SEMICONDUCTOR DEVICES OR INTEGRATED CIRCUITS

Giancarlo Ronzi, P.S. Eusebio 7, Agrate Brianza, Italy

Filed Nov. 9, 1970, Ser. No. 87,922
Claims priority, application Italy, Nov. 7, 1969, 53,937/69
Int. Cl. H01l 3/14, 7/32, 11/14
U.S. Cl. 148—187 15 Claims



In a process for preparing semiconductor devices of the MOS type, the improvement wherein the number of maskings, as well as the number of operations to be carried out at high temperatures, is reduced with respect to the known processes, and wherein the oxidizing operations are alternated with depositions of silicon nitride in order to control the thickness of the gate oxidization and to protect the device against external agents. The devices obtained by the improved process are characterized in that they have a layer of silicon nitride over the thick oxide, at the same level of the layer of nitride over the gate.

3,783,046

METHOD OF MAKING A HIGH-SPEED SHALLOW JUNCTION SEMICONDUCTOR DEVICE

Charles Frank Myers, Scottsdale, Ariz., assignor to Motorola, Inc., Franklin Park, Ill.

Continuation of abandoned application Ser. No. 813,105, Apr. 3, 1969. This application Apr. 22, 1971, Ser. No. 136,559
Int. Cl. H01l 7/34
U.S. Cl. 148—187 11 Claims

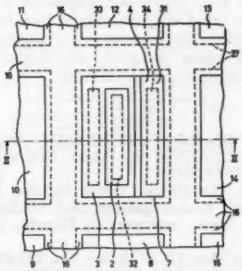
A shallow junction, high-speed semiconductor structure and method for making same wherein a first or base region of one conductivity type is formed in a semiconductor body using photolithographic processes. Next, one or more oxide layers are vapor deposited at a relatively low temperature on the surface of the structure. An opening is then made in the vapor deposited oxide layers to permit the passage of an impurity therethrough and forms a second, opposite conductivity type emitter region within the first region. Next, a thin layer of oxide is thermally grown over the exposed portion of the base region and over the exposed surface of the vapor deposited oxide layers. Thereafter, one or more openings in the surface oxide are selectively made to permit the formation of electrical contacts to the transistor base region and to other like conductivity type regions in the semiconductor structure. Then, by controllably etching the thin thermally grown oxide layer covering the second or emitter region, the emitter region can be exposed for the purpose of making ohmic contact thereto. According to the present process, the thin layer of thermally grown oxide is "washed out" of the emitter region by controlled etching. Such controlled etching eliminates a critical masking step which otherwise would have been required to make a contact opening for the emitter region. Ohmic contacts can now be made to the base and emitter regions of the structure using conventional techniques such as the evaporation of aluminum. Since all oxide masking is removed after the formation of the base region, the final oxide masking on the surface of the structure is of one uniform thickness.

3,783,047

METHOD OF MANUFACTURING A SEMICONDUCTOR DEVICE AND SEMICONDUCTOR DEVICE MANUFACTURED BY USING SUCH A METHOD

Maria Magdalena Mathilda Paffen, Johannes Arnoldus Appels, Wilhelmus Henricus Cornelis Gerardus Verkuijlen, and Else Kooi, Emmasingel, Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

Filed Mar. 1, 1972, Ser. No. 230,614
Claims priority, application Netherlands, Mar. 17, 1971, 7103548
Int. Cl. H01l 7/34
U.S. Cl. 148—187 24 Claims



A method of manufacturing a semiconductor device. By using a double layer as a masking layer, the electric properties of two regions which are situated in the semi-

conductor body accurately relative to each other can be varied without an interim precision photomasking step.

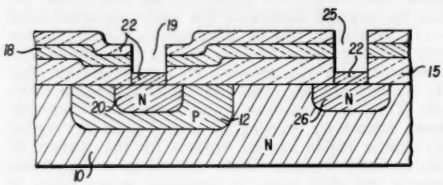
The invention provides very wide possibilities of application. For example, the first region can be doped with an impurity via an aperture in the masking layer, after which the lower component layer of the masking layer is underetched and an impurity is then introduced into the second region. It is also possible, after underetching the lower component layer, to oxidise the second region of the semiconductor body, as a result of which many important structures are obtained in a simple manner.

3,783,048

HIGH FREQUENCY TRANSISTOR FABRICATION

Thomas J. Sanders, Indialantic, Fla., assignor to Harris-Intertype Corporation

Filed Mar. 22, 1972, Ser. No. 236,809
Int. Cl. H01l 7/44
U.S. Cl. 148—187 **2 Claims**



In the fabrication of high frequency NPN transistors in integrated circuits, a doped oxide layer is formed on the surface of the wafer after diffusion of the base region and prior to opening the emitter diffusion window. Thereafter, removal of oxide regrown in the emitter diffusion window to form an emitter contact window, and simultaneous removal of other surface oxide concurrently grown therewith, leaves intact the doped oxide layer to prevent surface inversion.

3,783,049

METHOD OF PLATINUM DIFFUSION

Jiri Sandera, Manhattan Beach, Calif., assignor to TRW Inc., Lawndale, Calif.

Filed Mar. 31, 1971, Ser. No. 129,859
Int. Cl. H01l 7/34
U.S. Cl. 148—188 **15 Claims**

A method for providing a controlled degradation of minority carrier lifetime in a silicon semiconductor crystal body employing H_2P_t $[OH]_6$ as a source of platinum. One gram of H_2P_t $[OH]_6$ is dissolved in 130 cc. of anhydrous acetone. Approximately 0.05 cc. of this solution is placed on the surface of a silicon semiconductor crystal body. The solution is dried and the body is then heated to the platinum diffusion temperature for a time sufficient to have platinum atoms uniformly distributed throughout the active portion of the silicon crystal.

3,783,050

METHOD OF MAKING SEMICONDUCTOR DEVICE USING POLYCRYSTAL THIN FILM FOR IMPURITY DIFFUSION

Mitsuo Nanba, Kokubunji, Yukio Takano, Hoya, Hisayuki Higuchi, Kodairagakuen, and Michiyoshi Maki, Kokubunji, Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Mar. 13, 1972, Ser. No. 234,011
Claims priority, application Japan, Mar. 12, 1971, 46/13,105
Int. Cl. H01l 7/34
U.S. Cl. 148—188 **20 Claims**

In a method of making semiconductor device there is formed an approximately 1μ thick P-conductivity type silicon polycrystal thin film layer having impurities P-conductivity type boron and electrically neutral IV group germanium in a specific region on an N-conductivity type silicon single crystal substrate, the specific resistance of which is 5 to 10Ω cm. A heat treatment is applied to the substrate at a high temperature, to thereby simultaneously diffuse the boron and germanium impurities contained in the thin film layer into the substrate, thus forming a P-conductivity type impurity diffusion region which causes little lattice strain. Then phosphorus and germanium are simultaneously diffused into the P-conductivity type impurity diffusion region, forming an N-conductivity type impurity diffusion region causing little lattice strain.

3,783,051

METHOD OF MAKING LIGHT EMITTING DIODE WITH GOOD BRIGHTNESS CHARACTERISTIC

Takao Shitaya, Nara, Toru Ishida, Katano, Osaka, and Hisanao Sato, Ibaraki, Osaka, Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Filed Apr. 25, 1972, Ser. No. 247,270
Int. Cl. H01l 7/44
U.S. Cl. 148—189 **2 Claims**

A method of making a light emitting diode having good brightness of emitted light. A wafer of a single crystal of n-type solid solution of CdTe and MgTe including, as a dopant, 0.001 to 0.01 atomic percent of Al is heated in a vapor phase of P and Cd at a temperature of 670° to 850° C., for instance 670° to 790° C., for a time period of 15 minutes to 72 hours, for instance 15 minutes to 10 hours, for diffusing p into said n-type wafer so as to form a thin p-type layer.

3,783,052

PROCESS FOR MANUFACTURING INTEGRATED CIRCUITS ON AN ALUMINA SUBSTRATE

John A. Fisher, Mesa, Ariz., assignor to Motorola, Inc., Franklin Park, Ill.

Filed Nov. 10, 1972, Ser. No. 305,401
Int. Cl. H01l 7/34
U.S. Cl. 148—191 **3 Claims**

There is disclosed a process for manufacturing integrated circuits, particularly complementary integrated circuits, in a semiconductor material which is deposited upon an insulating aluminum oxide substrate. The process includes the steps of covering the semiconductor material with a masking layer having windows therein and then heating the substrate in a hydrogen atmosphere. The heating step causes an up-diffusion of aluminum into the semiconductor body to form P-type regions underlying the areas exposed to the hydrogen atmosphere through the windows.

3,783,053

PROCESS FOR MANUFACTURING GAS-ENTRAINED AQUEOUS GEL EXPLOSIVE

Bert W. Oettmeier, Miami, Fla., and Samuel J. Porter, Arlington, Va., assignors to Gulf Oil Corporation, Pittsburgh, Pa.

No Drawing. Filed Jan. 19, 1972, Ser. No. 219,115
Int. Cl. C06b 1/04
U.S. Cl. 149—41 **4 Claims**

A sensitive gas-entrained water gel explosive is made by mixing at a location convenient to the blasting site a concentrated aqueous solution of ammonium nitrate, nitric acid, sodium nitrate and hexamethylenetetramine and a minor amount of a thickening agent such as guar gum, allowing sufficient time for the gum to become hydrated and give the maximum thickening effect, then, mixing the resulting thickened solution with solid ammonium nitrate and a minor amount of a fuel to yield a thickened slurry, pumping the thickened slurry and injecting into

the exit stream from the pump both a substantial quantity of a gas and a solution which has the effect of crosslinking the thickening agent and conducting the resulting thickened slurry through a static mixer.

3,783,054

HIGH ENERGY BERYLLIUM ROCKET FUEL COMPOSITIONS AND PROCESSES THEREFOR

Everett M. Marlett and Robert N. Sanders, Baton Rouge, La., assignors to Ethyl Corporation, Richmond, Va.

No Drawing. Original application Oct. 24, 1967, Ser. No. 678,489. Divided and this application Apr. 10, 1969, Ser. No. 822,836

Int. Cl. C06d 5/08

U.S. Cl. 149—109 5 Claims

A composition useful as a high energy liquid rocket fuel or a chemical intermediate prepared by reacting beryllium hydride in dicyclopentadienyl beryllium.

3,783,055

PROPELLANT CONTAINING CONJUGATED DIENE POLYMERS REACTED WITH AT LEAST 10% OF ALIPHATIC MERCAPTAN

William B. Reynolds, Excelsior, Minn., and John E. Mahan, Bartlesville, Okla., assignors to Phillips Petroleum Company

No Drawing. Filed June 20, 1960, Ser. No. 37,516

Int. Cl. C06d 5/06

U.S. Cl. 149—19.9 17 Claims

1. An improved solid propellant comprising inorganic oxidizing salt and binder which is predominantly a cured rubbery polymer containing a major amount of combined conjugated diene having 4 to 12 carbon atoms, said polymer before curing having at least 10 percent of its double bonds reacted with aliphatic mercaptan of from 1 to 16 carbon atoms.

3,783,056

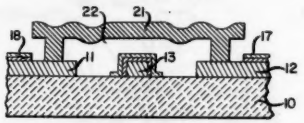
TECHNIQUE FOR THE FABRICATION OF AN AIR ISOLATED CROSSOVER

Harry Nevin Keller, Center Valley, and Arnold Pfahnl, Allentown, Pa., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed June 20, 1972, Ser. No. 264,618

Int. Cl. C23f 1/02

U.S. Cl. 156—3 3 Claims



A technique is described for the fabrication of an air isolated crossover including a supplementary insulating layer which is compatible with the crossover process and the thin film conductor system utilized in its fabrication. The supplementary insulating layer comprises silicon dioxide and is deposited during the processing sequence by conventional evaporation or other deposition techniques. The resultant double dielectric permits free movement of beams during temperature cycling, avoids edge deposition problems due to shadowing on sharp edges of the dielectric and makes pinholes in the dielectric innocuous.

3,783,057

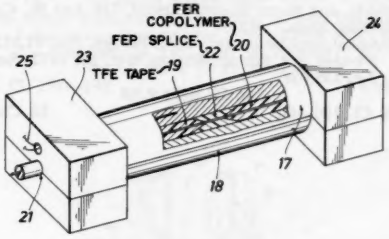
WIRE INSULATION SPLICING TECHNIQUE FOR HIGH TEMPERATURE WELL LOGGING CABLE

Richard P. McNerney, Houston, Tex., assignor to Schlumber Technology Corporation, New York, N.Y.

Filed Dec. 30, 1971, Ser. No. 214,233

Int. Cl. H02g 15/08

U.S. Cl. 156—49 4 Claims



Well logging cables substantially longer than 10,000 feet and operable in logging wells with bottom hole temperatures up to 600° F. are made feasible through a technique of splicing TFE fluorocarbon insulating material to FEP fluorocarbon insulating material using heat and pressure.

3,783,058

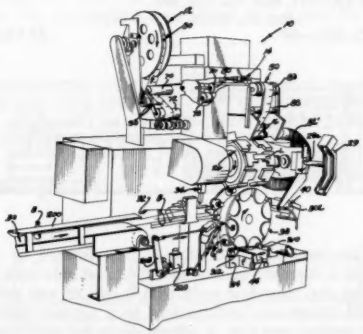
METHOD OF APPLYING LABELS AND CHECKING THE SAME

William H. Solomon, John R. Davies, and Carrel M. Forward, Grand Rapids, Mich., assignors to Oliver Machinery Company, Grand Rapids, Mich.

Original application Dec. 20, 1967, Ser. No. 692,194, now Patent No. 3,586,570. Divided and this application Aug. 12, 1970, Ser. No. 63,201

Int. Cl. B65c 9/42

U.S. Cl. 156—64 4 Claims



A labeling machine, system, and method capable of accommodating offset printed label tapes or other label tapes having discontinuities between the individual labels of a repeat print pattern, with feeding and severing such in controlled fashion utilizing a printed indicia code and a two stage feeding and cutting cycle, while uniquely

securing and advancing articles or containers to be labeled with novel equipment, both in a manner to allow extremely accurate and dependable label application and subsequent label verification on the article as well as label position checking, and with discharge means positively governing discharge of the labeled articles according to acceptability or non-acceptability.

3,783,059

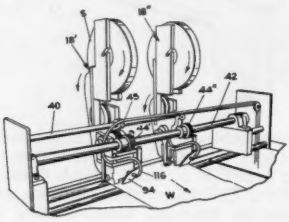
PRINTING PRESS AND WEB REGISTRY SYSTEM

James A. Black, 13700 Sparta NW., Kent City, Mich. 49330, and Harry Russell Farwell, 129 Ann St., Cedar Springs, Mich. 49319

Original application July 2, 1970, Ser. No. 51,852. Divided and this application Mar. 20, 1972, Ser. No. 235,938

Int. Cl. B65c 9/08

U.S. Cl. 156—64 10 Claims



A method of advancing web stock through positions of registry in a continuous web printing press. A series of tabs applied to the continuous web at spaced intervals each have a rearwardly oriented edge portion to which an advancing force is applied to move the web into a registry position at a printing station.

3,783,060

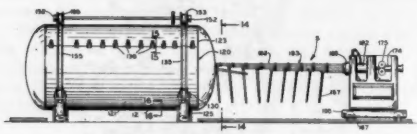
METHOD AND APPARATUS FOR MAKING FILAMENT REINFORCED STORAGE VESSELS

William B. Goldsworthy, Palos Verdes Estates, and Ethridge E. Hardesty, Pine Valley, Calif., assignors to Goldsworthy Engineering, Inc., Torrance, Calif.

Original application July 27, 1970, Ser. No. 58,482, now Patent No. 3,692,601. Divided and this application Sept. 14, 1971, Ser. No. 180,369

Int. Cl. B32b 5/26, 31/16

U.S. Cl. 156—69 25 Claims



A fiberglass reinforced storage tank formed by constructing a filament reinforced cylindrical side wall and enclosing the transverse ends with a pair of end domes. The end domes are prefabricated in a circular mold of proper contour and size. A solvent dispersed mold release agent is sprayed into the mold over the entire mold surface. Glass filaments are then laid along with a spray of catalyzed binder resin in the rotating heated mold, beginning at the center and extending to the outer periphery thereof to form the resin cured rigid end domes. The annular cylindrical side wall is formed by applying fiberglass resin to the interior surface of a rotating cylindrical mold in the presence of a catalyzed binder resin with the formed end domes secured to the transverse ends of the mold during side wall formation. A particulate matter such as sand may be added to the composition. The mold is divided into longitudinal arcuate sections which are capable of separating for removal of a finally formed storage tank.

3,783,061

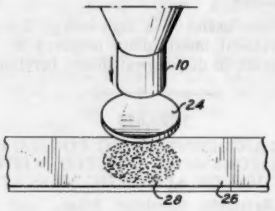
METHOD OF SONIC WELDING OF PLASTICS

Granville J. Hahn, Big Spring, Tex., assignor to Cosden Oil & Chemical Company, Big Spring, Tex.

Filed Mar. 24, 1970, Ser. No. 22,209

Int. Cl. B32b 31/20

U.S. Cl. 156—73 10 Claims



Plastic bodies are welded by using particles of thermoplastic material, melting at or about the plastic parts to be welded, distributed between the plastic surfaces to be welded, and then welding by applying ultrasonic vibrations impressed on one of the plastic bodies near the joint to be welded through a sound transferring resonating metal section termed a horn, which transfers intense ultrasonic vibrations to the plastic workpiece near the joint to be welded, the sound energy causing the particles to melt in the joint, bonding the surfaces together upon setting to form a firm weld.

3,783,062

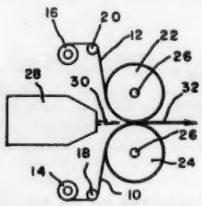
METHOD FOR FLAME BONDING BY USE OF HIGH VELOCITY, HIGH TEMPERATURE DIRECT FLAME

Wilhelm N. Martin, Grand'Mère, Quebec, Canada, assignor to Consolidated-Bathurst Limited, Montreal, Quebec, Canada

Filed Jan. 27, 1972, Ser. No. 221,167

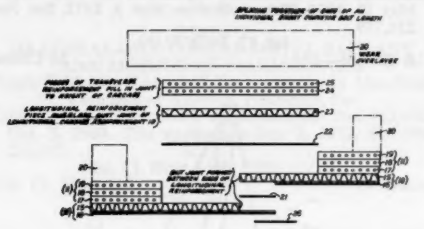
Int. Cl. B32b 31/26, 31/12

U.S. Cl. 156—82 9 Claims



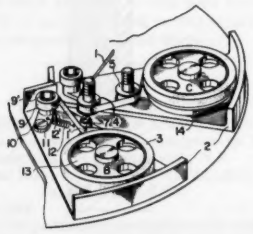
A method and apparatus for obtaining rapid bonding of thermoplastic materials to themselves or other similar or different materials by the use of a high velocity, high temperature direct flame in combination with pressure. The method is sufficiently rapid so that the properties of the materials are not substantially detrimentally affected. Thin laminates of highly oriented materials can be bonded without loss of strength characteristics.

3,783,063
METHODS OF MANUFACTURING ENDLESS CONVEYOR BELTS
Sven-Olle Paul Olsson, Trelleborg, Sweden, assignor to Trelleborgs Gummifabriks Aktiebolag, Trelleborg, Sweden
Filed Apr. 15, 1971, Ser. No. 134,293
Claims priority, application Sweden, Apr. 16, 1970, 5,204/70
Int. Cl. B29h 7/22; F16g 1/26
U.S. Cl. 156—137 3 Claims



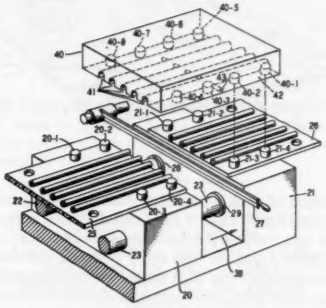
Thick endless conveyor belts having a carcass with at least one longitudinally and several transversely tension-reinforcing plies are manufactured in long lengths and cut and spliced to short endless belts. A special carcass-building and splicing method is described. The longitudinal tension-reinforcement is made as a continuous length and the transverse tension-reinforcement is made as discontinuous lengths spaced apart along the longitudinal tension-reinforcement. Removable spacers are placed in the spaces during vulcanization. The carcass is cut off in the space between consecutive transverse tension-reinforcement lengths. In splicing a piece of longitudinally tension-reinforcing ply is placed in the space in overlapping relationship on the ends of the longitudinal tension-reinforcement forming a butt joint with each other. While omitting at least one transversely tension-reinforcing ply the remaining height portion of the space is filled out with transversely tension-reinforcing plies.

3,783,064
METHOD AND APPARATUS FOR AUTOMATICALLY CONNECTING TAPES
Kei Okubo, Neyagawa, Katuyuki Yamamoto, Osaka, and Osamu Murayama, Kadoma, Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan
Filed Dec. 7, 1971, Ser. No. 205,551
Claims priority, application Japan, Dec. 9, 1970, 45/109,824, 45/109,825; Dec. 25, 1970, 45/130,071
Int. Cl. G03d 15/04
U.S. Cl. 156—159 3 Claims



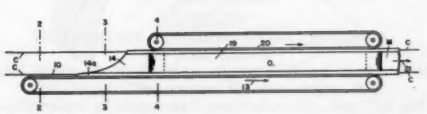
In supplying an adhesive tape from one after another of a plurality of tape reels, a method of and an apparatus for automatically connecting the trailing end of the tape of a preceding tape reel with the leading end of the tape of a successive tape reel in a positive manner with no slackness, and particularly a continuous tape supplying apparatus comprising a stack of tape magazines each having the leading end portion of the tape drawn out from the tape reel, and a turntable for successively individually positioning said tape magazines in a tape supplying position.

3,783,065
METHOD FOR SPLICING LIQUID-CORE OPTICAL FIBERS
Julian Stone, Rumson, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.
Filed June 12, 1972, Ser. No. 262,088
Int. Cl. B65h 69/02, 69/06
U.S. Cl. 156—158 4 Claims



Groups of liquid-core optical fibers are spliced together by means including a grooved cover plate wherein the grooves are connected together by means of a common manifold. Pairs of fibers on the two fiber group segments to be spliced are mounted on the splacing apparatus in approximate longitudinal alignment and spaced apart a distance preferably less than a core diameter. The grooved cover plate is then positioned over the adjacent fiber ends and bonded thereto. This serves to align the fibers more accurately and to seal the space between them. Some of the gas trapped between the fibers is then withdrawn through the manifold and replaced by additional core fluid. The manifold is then sealed, completing the splice.

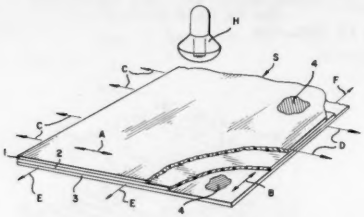
3,783,066
REINFORCED STRUCTURAL MEMBER OF FIBER GLASS AND METHOD OF MAKING THE SAME
Robert E. Myers, 18506 Prince William Lane, Houston, Tex. 77058
Filed Sept. 29, 1971, Ser. No. 184,802
Int. Cl. B32b 1/00
U.S. Cl. 156—161 2 Claims



Multiple layers of fiber glass cloth wetted with plastic resin are moved by a conveyor belt along shaping planes so that the cloth layers are shaped into a desired cross-section of the structural member being formed. Simultaneously, pre-tensioned reinforcing cords are passed lon-

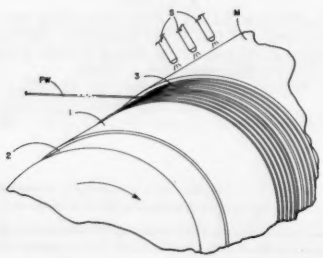
gitudinally above the conveyor belt so that they become embedded between the cloth layers and are bonded within the structural member when the resin is cured.

3,783,067
COMPOSITE SYNTHETIC-RESIN SHEET MATERIAL
Aristovoulos G. Petzetakis, Thessaloniki and Chandri Sts., Moschaton, Piraeus, Greece
Filed July 1, 1970, Ser. No. 51,554
Claims priority, application Greece, July 3, 1969, 40,473
Int. Cl. B32b *31/06, 31/08, 31/16*
U.S. Cl. 156—163 **2 Claims**



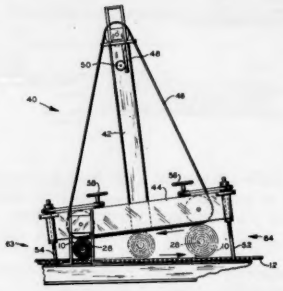
A method of making a sheet material which comprises sandwiching a molecularly unoriented synthetic-resin sheet having a relatively low molecular-disorientation temperature between a pair of uniaxially oriented synthetic-resin sheets having relatively high molecular-disorientation temperatures, arranging the orientation direction of one of the uniaxially-oriented sheets to lie at an angle (generally transversely) to the orientation direction of the other uniaxially-oriented sheet, and heating the laminated assembly to a temperature sufficient to fuse the nonoriented sheet to the molecularly oriented sheets, but below the molecular-disorientation temperature of the oriented sheets.

3,783,068
METHOD OF FORMING FUSIBLE REINFORCED POLYMER FILMS AND RESULTING COMPOSITE STRUCTURE
Gary G. Brown, Diamond Bar, Calif., assignor to Northrop Corporation, Beverly Hills, Calif.
Filed Mar. 12, 1970, Ser. No. 19,081
Int. Cl. B65h *81/00*
U.S. Cl. 156—173 **16 Claims**



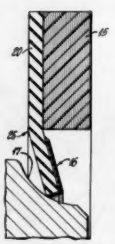
A method of forming polyamide films reinforced with reinforcing filaments, comprising providing a thin fusible, non-porous film of the polyamide on a filament winding drum, wrapping reinforcing filaments thereon, coating the filaments with additional polyamide resin, staging the material to a tack-free condition, then removing it from the winding drum and applying heat to remove the volatiles from the film. Stacked layers of the film can then be subjected to temperatures and pressures sufficient to fuse and cure the layers into an integrated structure.

3,783,069
METHOD AND APPARATUS FOR PRODUCING FIBROUS TUBULAR ARTICLES
Rupert Douglas Terry, Toledo, Ohio, assignor to Johns-Manville Corporation, New York, N.Y.
Continuation of abandoned application Ser. No. 41,018, May 27, 1970. This application Mar. 3, 1972, Ser. No. 231,759
Int. Cl. B65h *81/02*
U.S. Cl. 156—184 **24 Claims**



Method and apparatus for producing tubular articles formed of fibrous material wherein a moving mat of fibrous material is wrapped about a mandrel rotating about an axis moving along the path of the mat. The mat is then wrapped around the mandrel until a desired quantity of fibrous material is achieved. Thereafter, the mat and mandrel are conveyed to a sizing station where the outer diameter and configuration of the tubular article are finally set.

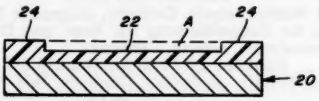
3,783,070
METHOD OF MAKING A BEARING SEAL
John F. Zotter, Southington, Conn., assignor to Textron Inc., Providence, R.I.
Original application Nov. 7, 1969, Ser. No. 874,927, now Patent No. 3,580,590. Divided and this application Nov. 25, 1970, Ser. No. 92,704
Int. Cl. B31f *3/00;* **B32b** *31/00*
U.S. Cl. 156—211 **4 Claims**



The invention contemplates a laminated seal construction and method utilizing a flat annular sheet of flexible material, such as elastomeric material, laminated to a backing material, which at an axially thick portion defines

a body, and which at an axially thin portion defines a seal member to be axially resiliently deflected with respect to the body. The method of the invention calls for removing backing material after the laminating step, the removed material affording a remainder which meets all requirements as to concentricity, circumferential uniformity of action, and the like. The material-removing step may be so characterized as to provide a local region for axial flexure, radially spaced from the region of wiping contact with the bearing ring to which it is sealingly engaged.

3,783,071
HEAT-SEALABLE COATED METAL PACKAGE AND METHOD OF MAKING SAME
Frank E. Monks, Bettendorf, Iowa, assignor to Aluminum Company of America, Pittsburgh, Pa.
Continuation of abandoned application Ser. No. 863,431, Oct. 3, 1969. This application Jan. 7, 1972, Ser. No. 216,232
Int. Cl. B05c *1/16*; B29d *23/10*
U.S. Cl. 156—217 **17 Claims**

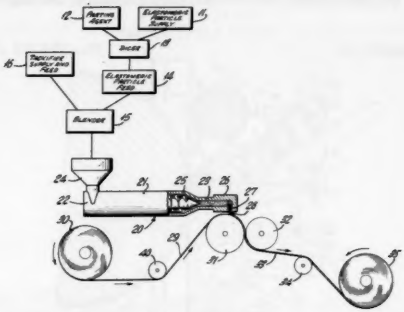


A method of manufacturing a package which comprises: coating substantially all of one surface of a metal web of foil or sheet thickness with a homogeneous coating of a heat sealable thermoplastic material having a lubricant constituent; applying said coating material in uniform thickness to at least one first elongated zone of the metal web; simultaneously applying the coating material in a uniform thickness greater than the coating thickness in the first elongated zone to at least one elongated zone disposed adjacent opposed transverse sides of the first zone; applying the coating by means of a gravure roll; providing a coating thickness in the second zone of about 0.75 to 4.0 lb./ream and providing a coating thickness in the first zone of about 0.30 to 2.0 lb./ream; and forming a package employing said coated metal web as a body component by heat sealing at least a portion of said second zone to a portion of said metal web or to another package component.

A coated container body comprising a metal web provided with such a two level coating; a first elongated zone of uniform coating thickness spaced inwardly from opposed transverse edges of the metal web; a second elongated zone of uniform coating thickness positioned intermediate each transverse edge of the metal web and the first elongated zone; the first zone having a width substantially greater than the second zone; and said metal web having at least one said second zone heat sealed to another portion of said metal web or to a separate package component to form said container body.

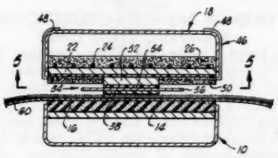
3,783,072
EXTRUSION PROCESS FOR PRESSURE-SENSITIVE ADHESIVE SHEETS AND TAPES
Ralf Korpman, Somerville, N.J., assignor to Johnson & Johnson, New Brunswick, N.J.
Filed Nov. 2, 1971, Ser. No. 195,016
Int. Cl. B29b *3/00*
U.S. Cl. 156—244 **10 Claims**

The process for producing normally tacky and pressure-sensitive adhesive sheets and tapes by extruding an adhesive based upon a particular type of A-B-A block copolymer wherein the adhesive is extruded at a moderate temperature and at a controlled viscosity and then hot drawn to reduce its thickness substantially, i.e., as much as 20 or more times prior to laminating it with a backing sheet. In the block copoymer, A is a thermoplastic polymer block derived from styrene and B is an elastomeric polymer block derived from isoprene. Preferably,



the block copolymer is particulate, and is blended with a tackifier resin in particle form prior to extrusion under conditions which allow the particle size of the respective components to be controlled.

3,783,073
METHOD FOR TRANSFERRING INDICIA TO FABRICS
Archie E. Warnberg, 3600 NW. 43rd St., Oklahoma City, Okla. 73112
Filed May 19, 1971, Ser. No. 144,856
Int. Cl. B44c *1/16*
U.S. Cl. 156—230 **5 Claims**

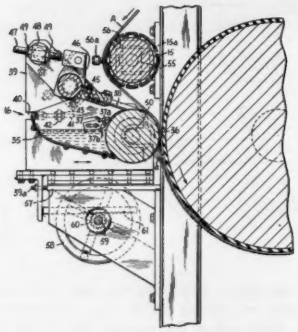


A method of decalcomania or indicia transfer to fabrics comprising the steps of placing the fabric to which the indicium is to be transferred upon a supporting surface, placing a transfer sheet carrying the indicium to be transferred on said fabric at the location where the indicium is to be transferred to the fabric, surrounding the edges of the indicium with a coplanar located thermal insulating material and applying heat and pressure to the indicium and to the coplanar thermal insulating material to transfer the indicium to the fabric at the point desired, while protecting the remainder of the fabric from heat degradation.

3,783,074
METHOD OF BONDING USING STRINGS OF ADHESIVE
John Reginald Normanton, Hale, England, assignor to The Duplan Corporation, Winston-Salem, N.C.
Continuation of abandoned application Ser. No. 700,147, Jan. 24, 1968. This application Feb. 16, 1971, Ser. No. 115,821
Claims priority, application Great Britain, Nov. 2, 1967, 49,760/67
Int. Cl. B32b *5/00, 7/12*; C09j *5/00*
U.S. Cl. 156—291 **5 Claims**

A method of producing a laminated product, for example, a fabric, in which one web of a fabric in properly

stretched and wrinkle-free condition is brought into engagement with an adhesive roll carrying a small metered amount of adhesive, a stringing effect is produced as the fabric leaves the surface of the adhesive roll, creating a definable adhesive structure on the fabric, the fabric is transferred to a rotating roll which maintains the fabric in properly stretched, wrinkle-free condition, leaving exposed a substantial area of the adhesive for removal of solvent and release of vapors, the web is brought into pressure contact with another fabric web to which it is to be laminated, and then the laminate is carried around and held against a drum for further removal of the solvent and to keep the fabric webs pressed together for a period of time after lamination.



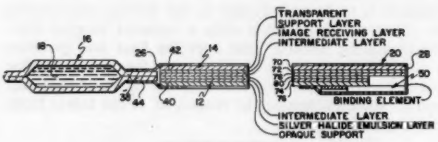
3,783,075
METHOD OF MANUFACTURING PHOTOGRAPHIC FILM UNIT

Edwin H. Land, Cambridge, Mass., assignor to Polaroid Corporation, Cambridge, Mass.

Application Mar. 6, 1969, Ser. No. 804,942, now Patent No. 3,652,282, which is a continuation-in-part of application Ser. No. 782,056, Dec. 9, 1968, now Patent No. 3,573,043, dated Mar. 30, 1971, which in turn is a continuation-in-part of application Ser. No. 622,283, Mar. 10, 1967, now Patent No. 3,415,644, dated Dec. 10, 1968. Divided and this application Dec. 23, 1971, Ser. No. 211,176

Int. Cl. B32b *7/00;* **C09j** *5/00;* **G03c** *1/48*

U.S. Cl. 156—309 **8 Claims**



Method of producing a photographic film unit adapted to be exposed and processed to produce a color image, comprising laminating first and second sheets in face-to-face relation and attaching a rupturable container of a processing liquid to the exterior of the sheets for dispensing its liquid contents between the sheets. The film unit is adapted to be processed by progressively applying compressive pressure to the container and sheets to spread the processing liquid between the sheets with delamination and lamination occurring during and by virtue of spreading of the processing liquid. The sheets are formed by coating at least one of a pair of layers with at least a plurality of layers including a water-soluble, polymeric layer containing a plurality of photosensitive, image-recording strata, e.g., differently sensitized gelatino silver halide emulsions. The other sheet includes a dimensionally stable layer which may be coated with one or more processing solution soluble or permeable, polymeric layers such as a dyeable polymer. Each of the layers of the film unit is preferably coated on its respective dimensionally stable layer or support as an aqueous system and dried prior to lamination of the two sheets with the polymeric layers sandwiched therebetween. The two sheets are laminated to one another by progressively pressing the sheets into superposition while distributing an aqueous solution of a water-soluble polymeric material between the sheets to form a bond that is adapted to rupture readily and cleanly by and in response to spreading of the processing liquid and is weaker than the bond between any other layers or strata of the film unit.

3,783,076
DEVICE FOR APPLYING LABELS ON PLANE SURFACES

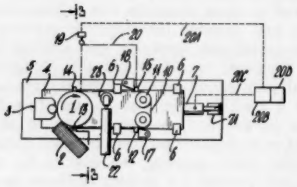
Rudolf Wetzig, Leipzig, Germany, assignor to Ingenieurburo fur Rationalisierung der Suss- und Dauerbackwarenindustrie, Leipzig, Germany

Filed Jan. 10, 1972, Ser. No. 216,577

Claims priority, application Germany, July 16, 1971, P 21 35 603.6

Int. Cl. B65h *29/00;* **B65c** *9/12*

U.S. Cl. 156—364 **7 Claims**



A unit of label supplying, label gluing and glued label applying devices is mounted on a base plate which is slidable along the path of the cartons or other units to be labelled. The label applying device is a drum having coaxially therewith, a sprocket which engages a chain displaceable along the slidable base plate. A fixed base plate, parallel to the slidable one, has stationary stop means mounted thereon and inter-engageable with movable stop means, secured to the chain. Upon the arrival of a carton, a signal first causes the slidable base plate, with the equipment thereon, to move along the carton; after completion of this motion it causes the slidable base plate to return to a prior position. During the first motion a label is supplied by the label supplying part of the unit; during the return motion the label is applied to the carton, on a plane surface thereof.

3,783,077
LABEL APPLICATOR

Edwin E. Messmer, 203 Leonard Young St., Oradell, N.J. 07649

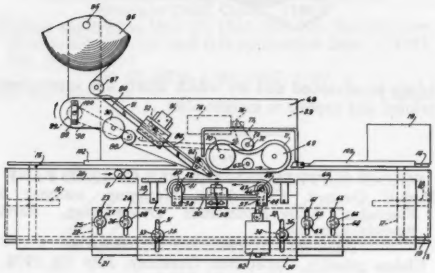
Filed Dec. 27, 1971, Ser. No. 211,927

Int. Cl. B65c *3/12*

U.S. Cl. 156—446 **14 Claims**

Apparatus for applying pressure-sensitive labels to containers wherein each container is moved by a conveyor belt into engagement with a pair of timing belts and a microswitch. The microswitch actuates label feeding means and as a result, a label is advanced into the path of the moving container. While the label is being advanced,

the timing belts slide the container and the label against a labeling belt which moves at the same speed as the label. The section of the labeling belt into which the container is urged is substantially parallel to a section of the timing belts. In addition, the space between the labeling belt and the timing belts is slightly less than the diameter of the



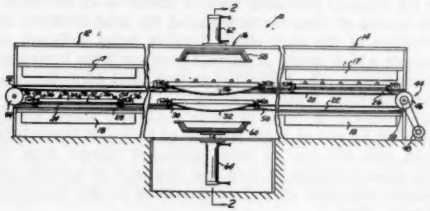
container and the belts move in opposite directions. Thus, the belts engage and frictionally rotate the container while the normal component of the frictional force fixes the label to the container. The speeds of the conveyor belt, timing belts, and labeling belt are all independently adjustable.

3,783,078

METHOD AND APPARATUS FOR FORMING HOLLOW PLASTIC ARTICLES

Albert S. Brodhead, Ann Arbor, Mich., assignor to Thetford Corporation, Ann Arbor, Mich.

Filed Oct. 20, 1971, Ser. No. 190,971
Int. Cl. B32b *31/20*
U.S. Cl. 156—499 **7 Claims**



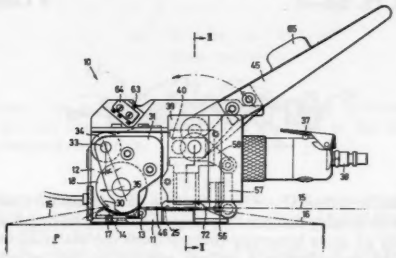
A method and apparatus for vacuum forming hollow plastic articles from heat-fusible sheets of organic plastic materials. A pair of open frames are mounted on rails for transfer in close parallel relationship, each frame having clamps for holding at each end thereof a sheet of plastic material. Ovens into which the rails extend are located in spaced relation, and midway between the ovens is a forming station through which the rails pass and wherein sectional molds are provided which can close on two parallel sheets supported by the open frames. The frames are arranged so that two sheets, one in each oven, can be heated simultaneously while two other sheets are being formed at the same time in the sectional molds. Transfer means shuttle the frames between the ovens and the forming station.

3,783,079

APPARATUS FOR SECURING TOGETHER STRAPS MADE OF THERMOPLASTIC MATERIAL

Hubert Wehr, Surth, in der Aue, Germany, assignor to Cyklop Gesellschaft Emil Hoffmann, Cyklopstrabe, Germany

Filed Dec. 9, 1971, Ser. No. 206,327
Claims priority, application West Germany, Jan. 19, 1971, P 21 02 344.9
Int. Cl. G03d *15/04*
U.S. Cl. 156—502 **10 Claims**



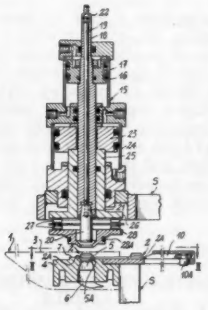
Apparatus for binding together thermoplastic strap portions by rotating a lever which actuates means for interposing the end of a continuous strip of wire screening between the strap portions. The end is severed from the strip when the press means, also actuated by the lever, forces the strap portions together. When severed, the screening is wedged between two electrodes in the press means and completes an electrical circuit which is activated by the lever contacting a timing device at the end of its stroke. The electrical current heats the screening which fuses the thermoplastic strap portions together.

3,783,080

APPARATUS FOR SECURING VALVES ON FLEXIBLE BAGS AND FLAT SHEETS CONVERTIBLE INTO BAGS

Luigi Goglio, Via Solari 10, Milan, Italy

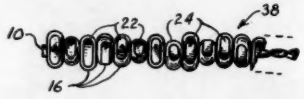
Filed Dec. 1, 1971, Ser. No. 203,759
Int. Cl. B32b *31/00*
U.S. Cl. 156—514 **5 Claims**



An apparatus for securing valves on bags or thermoweldable flat sheets convertible into hermetically sealable flexible bags, comprising, as substantially concentrically arranged and controlled by independent driving means, a punch to provide a hole in the bag or sheet for valve positioning, and a welding member which, after

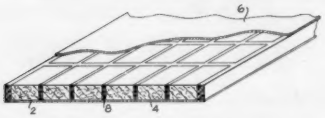
a hole has been provided in the bag or sheet and a valve has been fed at said hole, causes a thermowelding of the valve about the periphery of said hole.

3,783,081
ORNAMENTAL ELEMENT
Eliezer Levy, Bay Shore, N.Y., assignor to Filigree Arts Inc., New York, N.Y.
Original application July 24, 1969, Ser. No. 844,518, now Patent No. 3,667,098. Divided and this application June 2, 1971, Ser. No. 149,329
Int. Cl. A44c *11/00, 25/00;* **B21f** *43/00*
U.S. Cl. 161—7 **4 Claims**



An ornamental element for use as a decorative addition to jewelry comprises a strip of material having a plurality of parts integrally formed from the material, each of the parts having a surface exposed at the periphery of the strip. The surface of each part is characterized by a first portion of a given configuration and a second portion of different configuration. The second portions of the parts are randomly positioned about the axis of the integral strip to effect an irregular but attractive profile.

3,783,082
PANELS AND METHOD OF MAKING SAME
Ehud Almog, 13 Yegia Kapaim St., Ramat Hasharon, Israel
Filed Mar. 31, 1971, Ser. No. 129,682
Int. Cl. B32b *3/12, 5/18, 7/00*
U.S. Cl. 161—37 **5 Claims**



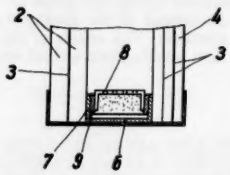
A panel comprises a pair of facing layers of sheet material forming the opposite outer faces of the panel, spaced blocks of insulating material between the facing layers, and ribs of rigid polyurethane foam in the spaces between the blocks of insulating material and bonding the facing layers together. The panel is produced by placing the insulating blocks on one facing layer with the blocks spaced from each other, placing the second facing layer thereover, and then injecting the rigid plastic foam into the spaces between the blocks (the blocks serving as molds) to form the ribs bonding the facing layers together.

3,783,083
COMPOSITE WEB OF PRESSURE SENSITIVE LABELS
William A. Jenkins, Englewood, Ohio, assignor to Monarch Marking Systems, Inc., Dayton, Ohio
Continuation-in-part of abandoned application Ser. No. 155,740, June 23, 1971. This application Dec. 8, 1971, Ser. No. 206,061
Int. Cl. B32b *3/10, 31/18, 3/16*
U.S. Cl. 161—38 **40 Claims**

There are disclosed various embodiments of a composite web of pressure sensitive labels, method and apparatus for making such embodiments of the composite web, and method and apparatus by which a composite web of

labels is advanced and by which labels are successively printed and applied to merchandise.

3,783,084
SOUND SUPPRESSING DOUBLE-GLAZED PANE
Rudolf Quenett, Cadolzburg, Germany, assignor to Flachglas Aktiengesellschaft Delog-Detag, Furth, Bavaria, Germany
Filed July 26, 1971, Ser. No. 165,474
Claims priority, application Germany, July 15, 1970, P 20 34 998.8
Int. Cl. B32b *1/04, 3/02*
U.S. Cl. 161—45 **7 Claims**



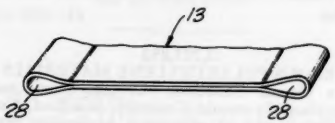
A sound suppressing double-glazed pane comprises two glazing sheets which are spaced apart and connected to each other at their edge by a sealing section. At least one of the glazing sheets is of laminated construction and comprises a plurality of individual glass sheets each joined to the adjacent individual sheet or sheets by an intermediate lamina of visco-elastic material, the total thickness or structure of the visco-elastic laminae being sufficient to provide a high degree of internal damping in the laminated glazing sheet. The laminated glazing sheet may comprise two individual sheets joined by a single lamina of polyvinyl butyral or three or more individual sheets joined together by two or more laminae of polyvinyl butyral. In each case the two or more polyvinyl butyral films of the usual thickness of 0.38 mm. are used to provide the desired thickness of polyvinyl butyral in the laminated glazing sheet.

3,783,085
PROTECTIVE MATERIALS
William Michael Pearson, Halifax, and Anthony Pearson, Bradford, England, assignors to Bondina Limited, Halifax, England
No Drawing. Original application Jan. 6, 1969, Ser. No. 789,406, now Patent No. 3,674,593. Divided and this application July 9, 1971, Ser. No. 161,313
Claims priority, application Great Britain, Jan. 19, 1968, 3,099/68
Int. Cl. A62b *17/00;* **A41d** *13/00;* **B32b** *5/16*
U.S. Cl. 161—87 **1 Claim**

A protective material, suitable for making up into protective garments, is formed by interposing powdered activated charcoal and powdered thermoplastic adhesive between two substrates and heat-sealing the assembly together. A microfine thermoplastic powder may also be

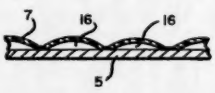
interposed, and this has the effect of counteracting undesirable effects due to any dust which may be present in the charcoal.

3,783,086
FLATTENED HEAT REACTIVE TUBING WITH EXPANDED PASSAGE
Walter A. Plummer, 3546 Crownridge Drive, Sherman Oaks, Calif. 91403
Original application May 13, 1969, Ser. No. 824,102, now abandoned. Divided and this application Sept. 1, 1971, Ser. No. 176,950
Int. Cl. B32b *1/00, 3/02, 3/20*
U.S. Cl. 161—126 **6 Claims**



A heat reactive length of plastic tubing having a bulged opening through the end thereof to facilitate entry of an object into the tube to expand the tubing and facilitate the assembly thereof over an object.

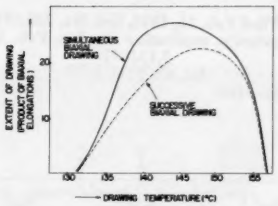
3,783,087
FINISHED METAL SHEET WITH REMOVABLE PROTECTIVE COVERING
Frank Vecchiarelli, Riveredge, N.J., assignor to Revere Copper and Brass, Incorporated, New York, N.Y.
Filed June 30, 1971, Ser. No. 158,153
Int. Cl. B32b *3/00*
U.S. Cl. 161—127 **1 Claim**



The finished surface of a metal sheet is protected with a removable film of thermoplastic material bonded to the finished surface along a grid-like pattern of lines that form hermetic seals for a plurality of discreate gas pockets between the finished metal surface and the film. The product is formed by preheating the metal to bonding temperature, by then bringing a discreate film of thermoplastic material into contact with the finished surface, and by pressing the film against the heated metal surface with a resilient pattern of ridges to form the aforesaid pattern of seal lines.

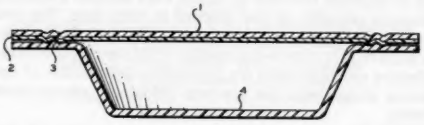
3,783,088
SYNTHETIC PAPER
Mitsuo Yoshiyasu and Takashi Toyoda, Yokkaichi, Japan, assignors to Kabushiki Kaisha Oji Goseishi Kenkyujo, Tokyo-to, Japan
Filed May 28, 1971, Ser. No. 147,910
Claims priority, application Japan, June 2, 1970, 45/46,933; Aug. 21, 1970, 45/73,216
Int. Cl. B32b *3/26, 19/02*
U.S. Cl. 161—160 **3 Claims**

A synthetic-resin film containing from 0.3 to 30 percent by volume of a fine filler is biaxially drawn substantially simultaneously in longitudinal and transverse directions to be expanded at least 5 times in area with a ratio of elongations in the two biaxial directions of from 1:0.25 to 1:4 thereby to form within the film numerous microvoids of a percentage of voids or porosity of at least 10



percent, the ratio of the dimensions of each microvoid in the two biaxial directions being the same as the ratio of elongations therein.

3,783,089
HEAT SEALED, READILY PEELABLE OR TEARABLE STRUCTURE SUITABLE FOR CLOSURES, LABELS, PACKAGING, ETC.
Alan R. Hurst, Hinsdale, Ill., and Salustiano S. Mirasol, Kansas City, Mo., assignors to Phillips Petroleum Company, Bartlesville, Okla.
Continuation of abandoned application Ser. No. 816,506, Apr. 16, 1969. This application July 28, 1971, Ser. No. 166,981
Int. Cl. B32b *27/08, 27/32;* **B65d** *65/40*
U.S. Cl. 161—166 **16 Claims**



A container or tray, preferably flanged, is closed with a composite peelable closure sheet heat sealed thereto. The embodiment described will remain sealed when subjected to ranges of temperatures of from about —40° to about 212° F. Yet, the closure remains readily removable.

The container can be made and is now preferred to be made of a high density polyethylene or a material of which at least the surface, which is heat sealed, is made of such a polyethylene. The closure sheet or composite can be made and is now preferred to be of a polyamide or other relatively high melting material, e.g., a polyester. Presently a nylon, e.g., nylon-6 resin onto which is coated, for the heat sealing thereof to the tray or container, a film of a low density polyethylene, is preferred. The adhesion is obtained or a container is closed hermetically by placing the composite sheet upon the portion, e.g., flange of the container at which it is to sealingly engage the same. The low density polyethylene side of the composite sheet is in contact with the container and the heat seal then engendered. A particular type of combination of materials used permits the film to pull cleanly from the container, leaving the flange or other sealed surface thereof neat and in a particular case, retaining the low density polyethylene which produced the seal as a just noticeably bead-like line on the flange when a line-seal has been employed.

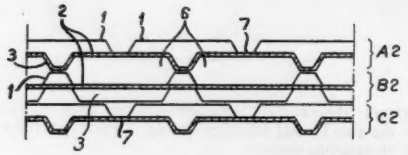
The container can be a high density coated paperboard container such as a milk container or a blister package, etc. Also the combination of materials can be used to label goods.

The useful combination of materials to fashion tear strips, labels, etc. is also disclosed.

3,783,090
HEAT EXCHANGER PLATES

Jarl Anders Andersson and Nils Hagert Gote Stadmark, Lund, Sweden, assignors to Alfa-Laval AB, Tumba, Sweden

Filed Feb. 16, 1972, Ser. No. 226,693
Claims priority, application Sweden, Feb. 19, 1971, 2,132/71
Int. Cl. F28f *3/00*
U.S. Cl. 161—166 **12 Claims**



The heat exchanger plates include at least one plate having on one face of its heat transferring part a first group of ridges extending in parallel spaced relation to each other and pressed upward from the plane of the plate, this face also having a first group of grooves extending in parallel spaced relation to each other at an angle to the ridges and depressed from said plane; and the other face has second groups of ridges and grooves formed by the grooves and ridges, respectively, of the first groups. Each of these faces has its ridges substantially abutting an opposing plate so as to define therewith a set of channels between its ridges, each channel extending across a plurality of the grooves in such face. The two sets of channels provide a low resistance to flow of the respective heat exchanging media, while the ridges provide effective spacing means for preventing deformation of opposing plates under the pressure difference between such media.

3,783,091
POLYSULPHONE REINFORCED SILICON ELASTOMER SEAL

Victor Jeffrey Leslie, Potters Bar, and Maurice Bernard Leggett, Claverdon, England, assignors to Imperial Chemical Industries Limited, London, England

No Drawing. Filed May 8, 1972, Ser. No. 251,465
Claims priority, application Great Britain, May 14, 1971, 14,874/71
Int. Cl. B32b *9/04*
U.S. Cl. 161—168 **3 Claims**

A reinforced seal is provided in which a silicone elastomer as hereinafter defined is formed on a rigid reinforcement containing at least one aromatic polysulphone.

3,783,092
CEMENT COMPOSITIONS CONTAINING GLASS FIBRES

Amalendu Jyoti Majumdar, Watford, England, assignor to National Research Development Corporation, London, England

No Drawing. Continuation-in-part of applications Ser. No. 649,463, June 28, 1967, Ser. No. 748,645, July 30, 1968, and Ser. No. 31,184, Mar. 26, 1970, all now abandoned. This application Mar. 23, 1971, Ser. No. 127,361
Claims priority, application Great Britain, Apr. 3, 1969, 17,448/69
Int. Cl. B32b *5/02;* **C04b** *31/06*
U.S. Cl. 161—170 **17 Claims**

Fibre reinforced cementitious products are described comprising glass fibrous material distributed throughout a cement matrix, in which the glass is one having per se a degree of alkali resistance such that when tested in the form of an abraded fibre of length 2½ inches and diameter of from 0.4 to 1.0×10^{-3} inches said fibre has a tensile strength of at least 100,000 p.s.i. after treatment with saturated aqueous $Ca(OH)_2$ solution at 100° C. for 4 hours followed by successive washings at ambient temperature with water, then with aqueous hydrochloric acid (1%) for 1 minute, water, acetone, following by drying, said fibre experiencing not more than 10% reduction in diameter during said test.

The reinforcement of portland cement structures by fibres of diameter 0.4 to 1.0×10^{-3} and lengths of up to 4 inches is described.

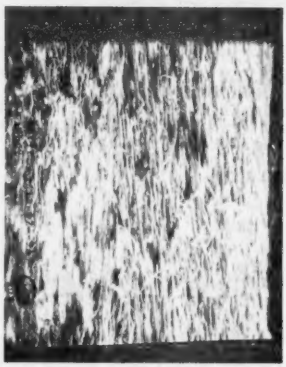
Alkali resistant glasses useful for production of these products comprise the $CaO\text{-}MgO\text{-}Al_2O_3\text{-}SiO_2$ glasses including those in the anorthite field, silica zirconia glasses, and silica stannic oxide glasses.

The products have outstanding durability and impact resistance.

3,783,093
FIBROUS POLYETHYLENE MATERIALS

Lawrence Vincent Gallacher, Norwalk, Conn., assignor to American Cyanamid Company, Stamford, Conn.

Continuation-in-part of abandoned application Ser. No. 820,761, May 1, 1969. This application May 17, 1971, Ser. No. 144,410
Int. Cl. B32b *3/26, 5/08*
U.S. Cl. 161—170 **6 Claims**



An extensively fibrillated thermoplastic resin material and method for preparing the same is given whereby a solid particulate thermoplastic resin which is insoluble in a selected leaching solvent is mixed and fibrillated under heat and pressure with another thermoplastic resin which is soluble in the selected leaching solvent. Following fibrillation, the resin mixture is subsequently contacted with the selected leaching solvent to remove the soluble resin thereby leaving an extensively fibrillated thermoplastic resin product which may be used as a synthetic fabric, and in other industrial applications.

3,783,094
ARTICLES PRODUCED BY CENTRIFUGAL CASTING

Wilhelm Baum, Mainz-Mombach, Germany, assignor to Siemens Aktiengesellschaft, Berlin and Munich, Germany

Original application Sept. 16, 1969, Ser. No. 858,267, now Patent No. 3,650,782, dated Mar. 21, 1972. Divided and this application Nov. 2, 1971, Ser. No. 196,816
Int. Cl. B32b *17/06*
U.S. Cl. 161—196 **3 Claims**

Glass for producing articles by centrifugal casting composed essentially of 60% SiO_2, 18% B_2O_3, 7% MgO, 6%

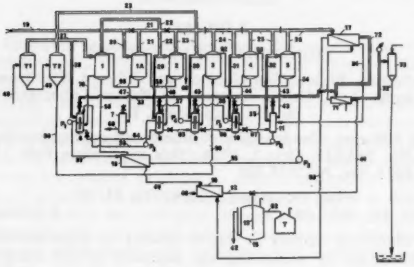
Li_2O, 4% Al_2O_3, 3% BaO, 1% CaO and 1% K_2O, within tolerances of about ±2%, all of the percentages being by weight; and article formed by helium-tight, stress-free fusion of the glass with an Fe-Ni-Cd alloy.

3,783,095

PROCESS FOR RECOVERING TURPENTINE AND HEAT IN CONNECTION WITH THE EVAPORATION OF BLACK LYE

Daniel Jafs, Helsinki, and Tapani Marttala, Varkaus, Finland, Kai Christiansen, Karlstad, Sweden, and Bertel Hakulin, Lahderanta, Finland, assignors to A. Osakeyhtio Ahlstrom, Noormarkku, Finland

Filed Feb. 18, 1972, Ser. No. 227,435
Claims priority, application Finland, Feb. 19, 1971, 474/71
Int. Cl. D21c *11/10*
U.S. Cl. 162—16 **6 Claims**



Turpentine and heat is recovered in connection with the evaporation of black lye emerging from a continuously working cellulose digester under high pressure and at high temperature. In a first step the black lye is concentrated in two successive expansion tanks and is thereupon fed into a multiphase evaporation apparatus operated by indirect heat exchange and fed with additional heat. The lye vapors from the first expansion tank are conducted to the first evaporation phase and the lye vapors from the second expansion tank to an evaporation phase succeeding the second evaporation phase, whereupon the condensate is collected at least from those evaporation phases to which the lye vapors from the expansion tanks have been fed and finally turpentine is recovered from these condensates in known manner. The lye condensates coming from the first and third evaporation phases may advantageously be combined before recovering turpentine therefrom.

3,783,096

METHOD OF MAKING PAPER USING A PIGMENT COMPRISING CALCIUM SULFATE PARTICLES EMBEDDED IN SILICA GEL PARTICLES

Roy D. Perdue, Andover, Mass., and Morris I. Cohn, deceased, late of Brookline, Mass., by Elliot E. Rosenberg, executor, Newtonville, Mass.; said Perdue assignor to Mica Trust, Boston, Mass.

Continuation of application Ser. No. 18,366, Mar. 12, 1970, now Patent No. 3,642,511, which is a continuation of abandoned application Ser. No. 766,453, Oct. 10, 1968. This application Jan. 14, 1971, Ser. No. 106,359
Int. Cl. D21h *3/66*
U.S. Cl. 162—181 A **6 Claims**

The use, as a filler or extender in paper making stock, of a pigment consisting essentially of particulate, water insoluble agglomerates of fine calcium sulfate particles embedded in finely divided silica gel particles, combined with recirculating to the process substantially all (approximately 95%) of the white water to provide a closed

Electron photomicrograph of product of example

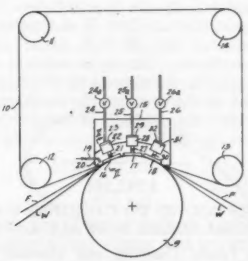
circuit white water system without substantial loss in sizing or deterioration of sheet strength and with excellent retention and opacity.

3,783,097

HYDRODYNAMICALLY LOADED WEB PRESS WITH SLIPPER BEARING SHOES

Edgar J. Justus, Beloit, Wis., assignor to Beloit Corporation, Beloit, Wis.

Filed May 30, 1972, Ser. No. 258,103
Int. Cl. D21f *3/06*
U.S. Cl. 162—358 **10 Claims**



A press mechanism for removing liquid from a traveling fibrous web such as a web of paper received from the fourdrinier section of a paper machine including a backing roll and a looped traveling belt forming a press nip with the roll with a plurality of shaped shoes extending the length of the roll and pressing the belt toward the nip with said shoes having a concave curved surface facing the belt and being pivotally supported so that a wedge of lubricating fluid builds up between each of the shoes and the belt to lubricate the shoes and to press the belt toward the nip. Means are provided for individually controlling the force with which the shoes are pressed toward the belt.

3,783,098

HIGHLY POTENT, VIABLE AND STABLE CELL-FREE VIRUS PREPARATIONS FROM CELLS INFECTED WITH CELL-ASSOCIATED VIRUSES AND METHOD FOR OBTAINING THE SAME

Bruce W. Calnek and Stephen B. Hitchner, Ithaca, N.Y., assignors to Cornell Research Foundation Inc., Ithaca, N.Y.

No Drawing. Continuation-in-part of abandoned application Ser. No. 92,920, Nov. 25, 1970. This application Aug. 10, 1971, Ser. No. 170,616

Int. Cl. C12k *1/08, 7/00*

U.S. Cl. 195—1.1 29 Claims

Viable, stable, cell-free virus suspensions having a high titer are obtained from cells infected with cell-associated virus by extracting the virus in the presence of a stabilizing agent. The viruses so produced may be lyophilized to form a viable storage-stable virus useful as a vaccine.

3,783,099

XANTHOPHYLLIC EXTRACTION PROCESS

Ralph F. Matoushek, St. Louis, Mo., assignor to Ralston Purina Company, St. Louis, Mo.

No Drawing. Filed Nov. 8, 1971, Ser. No. 196,766

Int. Cl. C12b *1/00*

U.S. Cl. 195—2 4 Claims

A process for the extraction of xanthophyllic pigments from plants is provided which includes the hydrolysis of the plant cellulosic material with a cellulase enzyme.

3,783,100

NON-RETROGRADED THINNED HYDROLYZATES

Roy F. Larson, Decatur, and Almerin W. Turner, Hampshire, Ill., assignors to A. E. Staley Manufacturing Company, Decatur, Ill.

Filed June 30, 1971, Ser. No. 158,475

Int. Cl. C12b *1/00*

U.S. Cl. 195—31 R 29 Claims

Thinned hydrolyzates are prepared by initially hydrolyzing a partial hydrolyzate of a D.E. less than 2.0 with alpha-amylase at 200° C.–212° F. and continuing the hydrolysis thereof at 185°–200° F. under non-retrograding process conditions. The alpha amylase requirements necessary to provide the thinned hydrolyzates are significantly reduced by the process. The resultant thinned hydrolyzates exhibit improved saccharification properties and rapid filtration characteristics.

3,783,101

ENZYMES BOUND TO CARRIERS HAVING A METAL OXIDE SURFACE LAYER

William H. Tomb, Corning, and Howard H. Weetall, Elmira, N.Y., assignors to Corning Glass Works, Corning, N.Y.

Filed Feb. 17, 1972, Ser. No. 227,205

Int. Cl. C07g *7/02*

U.S. Cl. 195—63 10 Claims

The half-life of enzymes which have been immobilized by chemical coupling via silane coupling agents to inorganic carriers is increased significantly by using a carrier which has been treated to increase its water-durability. Treatment of the carrier comprises the steps of first coating the carrier with a solution containing a metal, the oxide of which is more water-durable than the carrier, and then firing the coated carrier to form a continuous metal oxide layer on the carrier surface. The treated carriers are then silanized for chemical coupling with enzymes.

3,783,102

PRODUCTION OF L-ASPARAGINASE

Donald Sidney Callow, Brian John Capel, and Charles Gervase Thorngate Evans, Salisbury, England, assignors to Secretary of State for Social Services in Her Britannic Majesty's Government of the United Kingdom of Great Britain and Northern Ireland, London, England

No Drawing. Filed Nov. 11, 1971, Ser. No. 197,924

Claims priority, application Great Britain, Nov. 13, 1970, 54,277/70

Int. Cl. C12d *13/10*

U.S. Cl. 195—66 A 14 Claims

The enzyme L-asparaginase, which is therapeutically active against certain types of leukemia and disseminated cancers, may be produced in high yield by growing bacteria of the genus Erwinia in continuous culture in a limited steady state concentration of certain Krebs cycle intermediates and their precursors.

3,783,103

THROMBIN ASSAY SYSTEM

Robert C. Bishop, San Gabriel, and Edward Shanbrom, Santa Ana, Calif., assignors to Baxter Laboratories, Inc., Morton Grove, Ill.

No Drawing. Continuation of abandoned application Ser. No. 764,627, Oct. 2, 1968. This application Feb. 23, 1973, Ser. No. 335,382

Int. Cl. G01n *13/00, 31/14, 33/16*

U.S. Cl. 195—99 5 Claims

Thrombin activity in blood plasma is quantitatively determined by measuring the diameter of the opaque radial diffusion zone produced by the reaction of the blood plasma with unclotted fibrinogen suspended in a stable gel medium.

3,783,104

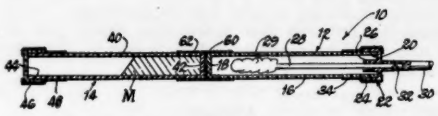
TESTING AND CULTURING TRANSPORT SYSTEM AND METHOD OF MAKING SAME

Jack R. Henshilwood, Highland, Ind., and Francois J. Soiret, Madison, Ill., assignors to Wilson Pharmaceutical & Chemical Corporation

Filed Nov. 12, 1971, Ser. No. 198,155

Int. Cl. C12b *1/00*

U.S. Cl. 195—104 10 Claims



A swabbing and culturing assembly having a pair of coaxial, releasably connected tubes connected to each other at their closed ends, as by adhesive or a shrink band or the like. One tube is closed by a cap mounting a swab. The other tube contains a culturing substance and is closed by a cap. The swab mounting cap is adapted to sealingly close each open end so that after the swab has collected a specimen, the swab may be sealed into the culture tube. The adhesive bond and shrink band are easily severable so that the tubes may be separated, to make the culture tube more compact for shipment to a laboratory. The tubes may be individually made and sterilized appropriately, as by gas or heat, after which the tubes are assembled in a closely adjacent end-to-end relation.

3,783,105

APPARATUS FOR ASSAYING ENZYME ACTIVITY

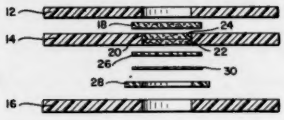
Rudolph H. Moyer, West Covina, and Donald J. Sibbett, Cucamonga, Calif., assignor to Geomet, Incorporated, Rockville, Md.

Filed Jan. 27, 1971, Ser. No. 110,185

The portion of the term of the patent subsequent to May 16, 1989, has been disclaimed

Int. Cl. G01n *31/14*

U.S. Cl. 195—127 11 Claims



Improved method and apparatus for quantitating the activities of a wide selection of enzymes present in biological fluids, using a spot test technique. The test ultilizes enzyme standards freeze-dryed on transparent membranes assembled together with but separated from reagents, including substrates, dyes, and cofactors, which are freeze-dryed in absorbent pads. The assembly may utilize microporous membranes as filters to assist in processing whole blood samples. As assembled, the spot test plates or slides are completely self-sufficient, require no added controls, instrumentation, or liquid volume measurement. The tests may be utilized under any environmental conditions such as those requiring rapid diagnostic support under emergency conditions, or routinely by medical practitioners in offices, hospitals or clinics. Test plates may assist in the diagnosis of a wide spectrum of pathological conditions relating to malfunctions of the liver, spleen, heart, neurological system, lungs, kidneys, muscle tissue, bones, etc.

3,783,106

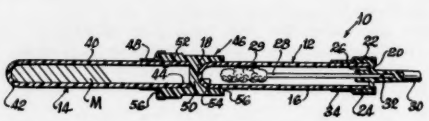
TESTING AND CULTURING TRANSPORT SYSTEM

Jack R. Henshilwood, Highland, Ind., assignor to Wilson Pharmaceutical & Chemical Corporation

Filed May 15, 1972, Ser. No. 253,353

Int. Cl. C12k *1/10*

U.S. Cl. 195—139 4 Claims



A testing and culturing transport system having coaxial first and second elongate tubes each defining a closed end and an open end, the closed end of the first tube and the open end of said second tube being in a closely adjacent end-to-end relation. The first tube mounts a cap bearing a swab and sealingly closes the first open end and the second tube contains a culture medium. Releasable securing means secures the tubes together and comprises a molded elongate plastic member defining a pair of coaxial bores each of which terminates inwardly of the plastic member in a solid wall. One of the bores is proportioned to receive and retain the closed end of said first tube and the second of the bores is proportioned sealingly to close the open end of the said second tube.

3,783,107

WATER DEPLETION UNIT FOR FUEL CELLS

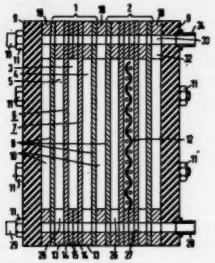
Hans Kohlmuller, Erlangen, Germany, assignor to Siemens Aktiengesellschaft, Berlin and Munich, Germany

Filed May 27, 1971, Ser. No. 147,316

Claims priority, application Germany, May 29, 1970, P 20 26 219.5

Int. Cl. B01d *3/42, 13/00;* H01m *27/00*

U.S. Cl. 202—160 9 Claims



A filter-press type water depletion unit for removing reaction water from the electrolyte cycle of a fuel cell battery forms a depletion cell having at least one gas space and an electrolyte space. The depletion unit has a coolable structure bordering the gas space and a diaphragm member separates the gas space from the electrolyte space, the diaphragm member having a rim portion that is gas-tight and impervious to electrolyte. The rim portion has a thickness greater than the remaining portion of the diaphragm. A holding arrangement presses the rim portion at its lateral surfaces for sealing the gas space and the electrolyte space and the rim portion is provided with respective passages communicating with the gas space and the electrolyte space.

3,783,108

METHOD AND APPARATUS FOR DISTILLING FRESHWATER FROM SEAWATER

Esko Ensio Huhta Koivisto, Lumikintie 6A77, Helsinki 82, Finland, and Risto Väino Juhani Saari, Luomo, Harjula, Finland

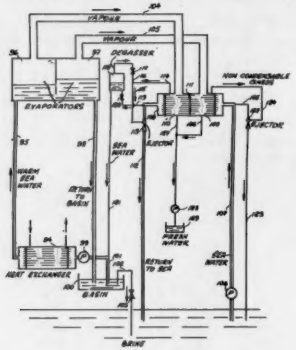
Continuation-in-part of application Ser. No. 873,174, Nov. 3, 1969. This application Jan. 18, 1971, Ser. No. 107,060

Int. Cl. B01d *3/06*

U.S. Cl. 203—11 11 Claims

A continuous flow of warm seawater—for instance, water from the surface—is fed upwards from a supply of the warm water through a column to degassers positioned at different levels. The warm water is fed from the lowest to the highest degasser, in which gradually decreasing partial pressures, that are higher than the partial pressures of the warm water are established. The non-condensable gasses released in the degassers are removed and the warm water is raised further through the

column to evaporators through which the warm water is passed in turn. In the evaporators, gradually decreasing pressures corresponding to the gradually decreasing partial pressure of the water vapor in them are maintained. The waste water from the last evaporator is returned to the sea downwards through another column and the

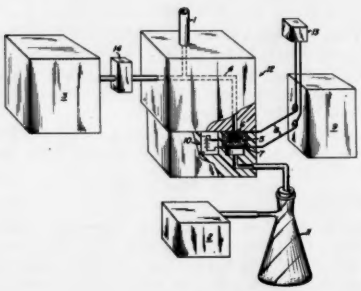


vapors from each evaporator are conducted separately to a corresponding condenser operated by indirect heat exchange, using a continuous stream of cold seawater obtained from the sea. Residual non-condensable gasses released on the vaporization of the warm water are removed from the condensers and the freshwater is collected from the condensers.

3,783,109
AIR POLLUTION MONITORING METHOD

Louis H. Goodson, Kansas City, and William B. Jacobs, Independence, Mo., and Andrew W. Davis, Baltimore, Md., assignors to the United States of America as represented by the Secretary of the Army

Original application Dec. 22, 1970, Ser. No. 100,741, now Patent No. 3,715,298, dated Feb. 6, 1973. Divided and this application Mar. 24, 1972, Ser. No. 237,665
Int. Cl. G01n *27/46*
U.S. Cl. 204—1 T **3 Claims**

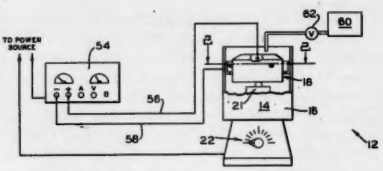


A method for continuous monitoring of an airstream for the presence of pollutants therein by effective absorption of the pollutants in an absorbing solution by creating turbulent flow of the airstream and the absorbing solution prior to passing the absorbing solution containing the pollutants to an electrochemical cell whereby any electrical change produced in the electrodes of the electrochemical cell denotes the presence of pollutants; any electrical change being monitored by conventional means.

3,783,110
PROCESS FOR ELECTRODEPOSITION OF METALS UNDER THE INFLUENCE OF A CENTRIFUGAL FORCE FIELD

Iqbal Ahmad, Elnora, N.Y., assignor to the United States of America as represented by the Secretary of the Army

Continuation-in-part of application Ser. No. 149,366, June 2, 1971, which is a continuation of application Ser. No. 792,683, Jan. 21, 1969, both now abandoned. This application Dec. 20, 1972, Ser. No. 316,950
Int. Cl. C23b *7/02, 7/04*
U.S. Cl. 204—12 **4 Claims**



This invention relates to the electrodeposition of metals and alloys and provides process and apparatus for depositing metals under the influence of a centrifugal force field to increase the efficiency of the operation and produce metal deposits having a high density and modulus of elasticity.

3,783,111
GOLD PLATING BATH FOR BARREL PLATING OPERATIONS

Maurice Bick, South Orange, and Jean A. Lochet, Metuchen, N.J., assignors to Auric Corporation, Newark, N.J.

No Drawing. Continuation-in-part of application Ser. No. 273,860, July 21, 1972. This application Sept. 11, 1972, Ser. No. 288,020
The portion of the term of the patent subsequent to Dec. 26, 1989, has been disclaimed
Int. Cl. C23b *5/28*
U.S. Cl. 204—46 **14 Claims**

An electroplating bath particularly suited for barrel plating operations. The bath includes in addition to an alkali-gold cyanide, a soluble salt of one or more chelating aminopolycarboxylic acids, with quantities of hydrazine, and small amounts of arsenic and/or lead ion.

3,783,112
MANUFACTURE OF SEBACIC ACID DIESTERS

Fritz Beck, Ludwigshafen, Juergen Haufe, Lambsheim, and Heinz Nohe, Ludwigshafen, Germany, assignors to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen (Rhine), Germany

No Drawing. Filed May 10, 1971, Ser. No. 142,043
Claims priority, application Germany, May 12, 1970, P 20 23 080.2
Int. Cl. C07b *29/06;* **C07c** *67/00, 69/50*
U.S. Cl. 204—59 R **7 Claims**

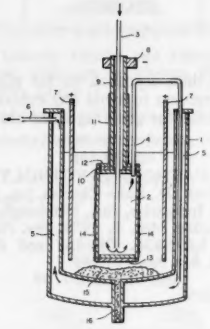
Process for the production of sebacic acid diesters from adipic acid monoesters of higher alcohols by electrochemical condensation in methanolic solution using continuous

or intermittent flow of current, in which a saturated mono- or polyvalent ether or a lower alkanoic acid is added to the reaction mixture.

3,783,113
ELECTROLYTIC REGENERATION OF SPENT ETCHANT

Emerson H. Newton, Arlington, John M. Ketteringham, Lincoln, John L. Sienczyk, Arlington, and Calvin M. Isaacson, Beverly, Mass., assignors to The Shipley Company, Inc., Newton, Mass.

Filed Oct. 12, 1971, Ser. No. 188,189
Int. Cl. C22d *1/16*; C23b *3/02*
U.S. Cl. 204—106 **29 Claims**



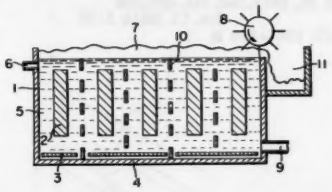
The invention relates to a process for extracting copper as metal from a used etchant solution containing complexed cupric ions as an oxidant while simultaneously regenerating the etchant for further use. The etchant treated may have a pH from below 0 to 13, but preferably has a pH of at least 3 and more preferably has a pH between about 4 and 10. The process comprises electrowinning a portion of the copper from solution under conditions effective for electrowinning but not etching. These conditions include a substantial freedom from oxygen in the vicinity of the cathode, high current density, a substantial freedom from solution agitation during the winning operation and preferably for good efficiency, low solution temperature at the interface of the solution and the cathode, typically below 140 F. The process is economical because in the preferred embodiment, a portion only of the copper in solution is removed, the remaining copper being left in solution and available as a source of cupric ion for reuse of the etchant. The process is an important contribution to pollution abatement efforts as it eliminates the need for dumping copper and other wastes resulting from an etching operation.

3,783,114
METHOD OF ELECTROLYTIC TREATMENT OF WASTE WATER

Masahito Ishii and Minoru Ichiki, Tokyo, Japan, assignors to Mitsui Mining & Smelting Co., Ltd., Chuo-ku, Tokyo, Japan

Filed Feb. 18, 1972, Ser. No. 227,594
Claims priority, application Japan, Feb. 23, 1971, 46/8,856
Int. Cl. C02c *5/12*
U.S. Cl. 204—149 **7 Claims**

A method of electrolytic treatment of industrial waste water, which comprises the steps: electrolysis is conducted by introducing said industrial waste water as the electrolyte into an electrolytic cell equipped with vertically suspended anodes and horizontal cathodes disposed close to the bottom of the cell; the scum arising from the electrolysis of the heavy metal ions, fats and oils including animal, vegetable and mineral oils, various fine, solid



floating matters, etc. is taken out from the upper part of the electrolytic cell; and the electrolytically purified waste water is taken out from the lower part of the electrolytic cell.

3,783,115
PROCESS FOR THE RADIATION TREATMENT OF POLYETHYLENE

Gisela Zeppenfeld, Dresden, Germany, assignor to Ve Textilkombinat Cottbus, Cottbus, Germany

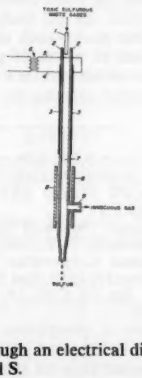
No Drawing. Filed July 23, 1971, Ser. No. 165,738
Int. Cl. B01j *1/10, 1/12*
U.S. Cl. 204—159.2 **4 Claims**

Process for preparing cross-linked polyethylene fiber materials by means of high energy radiation comprising irradiating a polyethylene sheet material with a high dose rate, preferably $\geq 10^4$ rad/s. under an inert gas cushion or in vacuum, with a radiation dose of between 5 and 20 mrad, preferably between 6 and 10 mrad and thereafter tempering the irradiated sheet material in a heating zone under an inert gas cushion or in vacuum at a temperature under the crystallite melting point and preferably at a temperature of between 80 and 120° C.

3,783,116
DECOMPOSITION OF CARBONYL SULFIDE (COS) IN ELECTRIC CHARGE

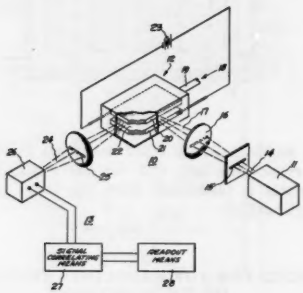
Larry A. Haas, Burnsville, and Sanaa E. Khalafalla, Minneapolis, Minn., assignors to the United States of America as represented by the Secretary of the Interior

Filed Jan. 26, 1973, Ser. No. 326,646
Int. Cl. B01d *53/34*; C01b *17/04, 31/18*
U.S. Cl. 204—164 **7 Claims**



COS is passed through an electrical discharge gap to decompose into CO and S.

3,783,117
MEASUREMENTS OF PARTICLES AND MOLECULES
Charles P. Bean, Schenectady, N.Y., assignor to General Electric Company
Original application Oct. 19, 1970, Ser. No. 81,824, now Patent No. 3,708,402. Divided and this application Oct. 20, 1972, Ser. No. 299,368
Int. Cl. B01k *5/00*
U.S. Cl. 204—180 R 3 Claims



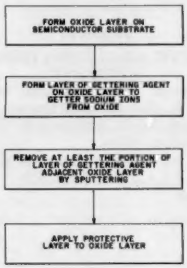
Particles to be measured and analyzed are placed in solution in a light transmissive cell. A shaped, flat beam is passed into the cell. Particles are urged through the beam and their passage causes time variations in the intensity of light scattered thereby. The scattered light is collected and transformed into an electrical signal. Signal is correlated with itself as a time varying function and the electrophoretic mobility of the particles is determined.

3,783,118
METHOD FOR THE ELECTROPHORETIC SEPARATION OF SUBSTANCE MIXTURES
Vilhelm Einar Stellan Hjertén, Uppsala, Sweden, assignor to Pharmacia Fine Chemicals AB, Uppsala, Sweden
No Drawing. Filed Dec. 4, 1972, Ser. No. 312,243
Claims priority, application Sweden, Dec. 13, 1971, 15,933/71
Int. Cl. B01k *5/00*
U.S. Cl. 204—180 G 1 Claim

The present invention relates to a method for the separation of substances in a mixture and more particularly, it is concerned with a method for the separation of substances in a mixture, in which the mixture is caused to pass through a gel body under the influence of an electric force field to divide the constituents of the mixture into different zones within the gel body, whereafter the gel body is divided into pieces, each containing one of said zones, and the piece or pieces of gel are solubilized by decomposition and caused to form a solution together with one or more separated constituents.

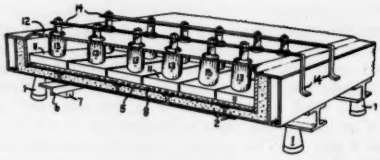
3,783,119
METHOD FOR PASSIVATING SEMICONDUCTOR MATERIAL AND FIELD EFFECT TRANSISTOR FORMED THEREBY
Lawrence V. Gregor, Hopewell Junction, and Leon I. Maissel, Poughkeepsie, N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.
Filed June 18, 1969, Ser. No. 834,412
Int. Cl. C23c *15/00*
U.S. Cl. 204—192 9 Claims

A gettering layer of phosphorus pentoxide (P_2O) or lead oxide (PbO) is deposited on a thermally grown or pyrolytically deposited layer of silicon dioxide to form a glass to getter the sodium ions from the silicon dioxide layer. The gettering agent is then removed by sputter etching and a protective material such as silicon nitride,


FORM OXIDE LAYER ON SEMICONDUCTOR SUBSTRATE
FORM LAYER OF GETTERING AGENT ON OXIDE LAYER TO GETTER SODIUM IONS FROM OXIDE
REMOVE AT LEAST THE PORTION OF LAYER OF GETTERING AGENT ADJACENT OXIDE LAYER BY SPUTTERING
APPLY PROTECTIVE LAYER TO OXIDE LAYER

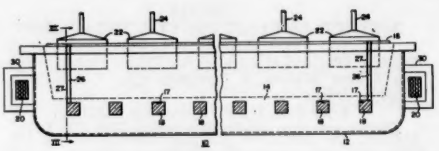
for example, is then deposited on the silicon dioxide by sputtering in a manner to avoid any contamination of the silicon dioxide after the gettering agent has been removed.

3,783,120
MERCURY CATHODE ELECTROLYTIC CELLS
James G. Peck, Jr., Lake Charles, La., assignor to PPG Industries, Inc., Pittsburgh, Pa.
Original application Mar. 9, 1970, Ser. No. 17,505, now Patent No. 3,691,036. Divided and this application Oct. 21, 1971, Ser. No. 191,265
Int. Cl. C22d *1/04*
U.S. Cl. 204—219 3 Claims



A mercury amalgam cathode electrolytic cell useful for the electrolysis of aqueous alkali metal chloride solutions is disclosed. The electrolytic cell includes means for reducing or eliminating the effects of electromagnetic fields induced in the mercury amalgam cathode by the various electrical currents in the vicinity of the cell.

3,783,121
MAGNETIC FIELD CONTROL IN ELECTROLYSIS CELLS
Robert F. Robl, Monroeville, Pa., assignor to Aluminum Company of America, Pittsburgh, Pa.
Filed Mar. 24, 1972, Ser. No. 237,728
Int. Cl. C22d *3/02*
U.S. Cl. 204—243 M 7 Claims



An elongated, magnetic flux impeding means is provided in the magnetically conductive shell of an electrolysis cell, and extends in a direction substantially perpendicular to the direction of a magnetic field component

that is induced in the shell by electrolysis current flow in the cell. The flux impeding means is effective to concentrate the force of the magnetic field component at the location of the flux impeding means, and to generally prevent the saturation of the shell. With the force of the magnetic component concentrated at the location of the flux impeding means, the magnetic field component in the remaining areas of the shell is correspondingly and substantially reduced, and thereby reduced in the adjacent areas of the cell. In addition, a magnetically conductive structure is included to saturate the magnetically conductive shell at critical locations to allow penetration of the shell of a magnetic field component produced externally of the cell.

3,783,122

INTERCELL BUS BAR CONNECTION MEANS

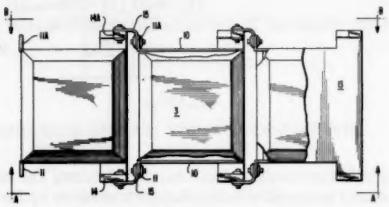
Chosei Sato, Takeshi Adachi, and Hiroyuki Inoy, Kanagawa, Japan, assignors to Showa Denko Kabushiki Kaisha, Tokyo, Japan

Filed Mar. 8, 1972, Ser. No. 232,768

Claims priority, application Japan, Mar. 9, 1971, 46/12,200

Int. Cl. B01k *3/00*

U.S. Cl. 204—279 **3 Claims**



A bus bar assembly for a diaphragm-type electrolytic cell for electrically connecting a side portion of a cathode structure to an end portion of an anode base comprising

cathode bus bars connected to a side portion of said cathode structure, said cathode bus bars having an end portion thereof at an outward angle transverse to the plane of said cathode bus bar and

anode bus bars connected to an end portion of said anode base, said anode bus bars having a portion thereof at an upward angle transverse to the plane of said anode bus bar is disclosed.

3,783,123

HYDROCARBON CONVERSION PROCESS

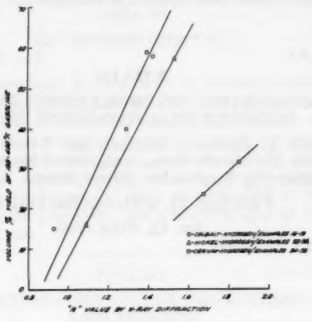
Dean Arthur Young, Yorba Linda, Calif., assignor to Union Oil Company of California, Los Angeles, Calif.

Continuation-in-part of application Ser. No. 17,974, Mar. 9, 1970, now Patent No. 3,706,694, which is a continuation-in-part of applications Ser. No. 761,321, Sept. 20, 1968, and Ser. No. 681,561, Nov. 11, 1967, both now abandoned. This application Sept. 15, 1970, Ser. No. 72,377

Int. Cl. C01g *13/02;* **C01b** *33/28*

U.S. Cl. 208—111 **22 Claims**

Hydrocarbons are converted in the presence of catalysts comprising at least a catalytic amount of a crystalline aluminosilicate zeolite thermally activated by heating to a temperature in excess of about 900° F. in a period not substantially in excess of about 30 minutes. Such catalysts can comprise other active hydrocarbon conversion components such as the metals, oxides and sulfides of Groups II–B, IV–B, V–B, VI–B and VIII. These compositions are particularly effective for catalytic cracking, hydrofining, hydrogenation, hydrocracking, isomerization and the like.



3,783,124

HYDROCARBON CONVERSION WITH NOVEL ZEOLITE

Mae K. Rubin, Bala Cynwyd, Pa., and Edward J. Rosinski, Deptford, N.J., assignors to Mobil Oil Corporation

No Drawing. Original application Oct. 16, 1969, Ser. No. 867,063, now Patent No. 3,699,139. Divided and this application Feb. 4, 1972, Ser. No. 223,787

Int. Cl. B01j *9/20;* **C01b** *33/28;* **C10g** *13/02*

U.S. Cl. 208—111 **10 Claims**

A method is provided for hydrocarbon conversion using a catalytically-active form of the novel synthetic crystalline alumino-silicate zeolite having a rigid three-dimensional structure originally characterized by having benzyltrimethylammonium ions in the structure, said zeolite having an original composition, expressed in terms of mole ratios of oxides as follows:

$$xR_2O:yK_2O:(1\pm0.2)-(x+y)Na_2O:Al_2O_3:5\text{–}20SiO_2:0\text{–}10H_2O$$

wherein x is a value between greater than 0 and less than 0.4, y is a value between about 0.3 and about 0.6 and R is benzyltrimethylammonium.

3,783,125

SWEETENING LIQUID HYDROCARBONS WITH A CALCINED HEAVY METAL EXCHANGED ZEOLITE

John A. Ondrey, Tyler, Tex., and Michael R. Basila, Munster, Ind., assignors to Howe-Baker Engineers, Inc., Tyler, Tex.

No Drawing. Filed Sept. 21, 1972, Ser. No. 291,152

Int. Cl. C10g *27/00*

U.S. Cl. 208—191 **6 Claims**

A liquid hydrocarbon containing organic mercaptans is contacted with a heavy metal exchanged aluminosilicate

zeolite containing from 5 to 20% by weight of copper, chromium, tin or mixtures thereof to convert the mercaptans to disulfides. The metal exchanged zeolite is prepared from a dilute solution of the metal salt, rinsed, dried at 80–150° C. for 2–6 hours, heated to 500° C. for 4–8 hours, calcined at 500–700° C. for 6–12 hours and then cooled over a period of 3–6 hours.

3,783,126

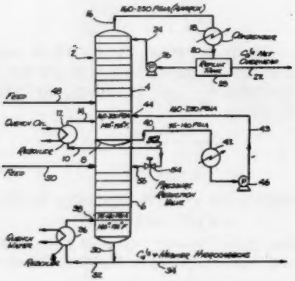
FRACTIONATING HYDROCARBONS IN A DUAL PRESSURE FRACTIONATION TOWER

Gardner L. Hayward, Belmont, and Edwin C. Meilun, South Weymouth, Mass., assignors to Stone & Webster Engineering Corporation, Boston, Mass.

Filed Sept. 22, 1971, Ser. No. 182,714

Int. Cl. C10g 7/00

U.S. Cl. 208—351 **4 Claims**



A dual pressure fractionation tower having a high-pressure section and a low-pressure section and the fractionation process using a high-pressure section and a low-pressure section. Communication is provided between the high-pressure and low-pressure sections of the passage of the light ends from the low-pressure fractionation section to the high-pressure fractionation section and for passage of heavy ends from the high-pressure section to the low-pressure section. Both fractionation tower sections are provided with reboilers through which section bottoms are passed for recirculation to heat the fractionation tower sections. Condensers are also provided to condense the vapors from both fractionation tower sections.

3,783,127

COMBINATION CONCENTRATOR-DIALYZER DEVICE

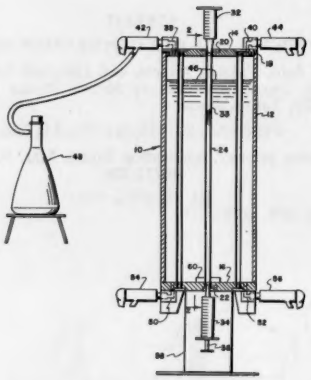
Melvin W. Cook, 5118 SW. Scholls Ferry Road, Portland, Oreg. 97225, and Donald E. Begley, Hillsboro, Oreg.; said Begley assignor to said Cook

Filed July 2, 1971, Ser. No. 159,292

Int. Cl. B01d 13/00, 31/00

U.S. Cl. 210—22 **10 Claims**

A laboratory method and device for simultaneously concentrating and dialyzing, through the same semipermeable membrane, a sample of macromolecules such as a protein solution. The device comprises an air-tight vertical cylindrical housing having a plurality of semipermeable membrane tubes stretched vertically inside the housing between its top and bottom end walls. The open ends of each tube are sealingly fastened to the end walls of the housing and communicate with the exterior thereof through apertures, so as to expose the interior of each tube to the atmosphere while sealing it from the remainder of the cylindrical housing. The aperture at the bottom of each tube is adaptable to receive a syringe for automatically predetermining the minimum volume to which the sample will be concentrated. The interior of the cylindrical housing comprises a dialysate compartment filled with a suitable liquid which



engulfs the exterior of the membrane tubes. The liquid is initially subjected to subatmospheric pressure by the application of suction from a primary source of vacuum such as a vacuum pump or water aspirator communicating with the interior of the housing. After the initial application of suction, the liquid can be maintained at subatmospheric pressure by coupling the housing with a vacuum reservoir, and the primary source of vacuum can be disconnected from the housing. Upon the insertion of a sample into a membrane tube, both dialysis and concentration of the sample occur simultaneously through the semipermeable membrane tube.

3,783,128

PROCESS FOR RECOVERING FOREST PRODUCT PLANT WASTES

Robert E. S. Thompson, R.D. 3, Sachems Head, Guilford, Conn. 06437

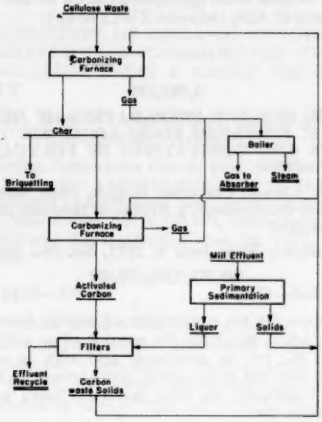
Filed Apr. 26, 1972, Ser. No. 247,582

Int. Cl. B01d 15/06

U.S. Cl. 210—27 **7 Claims**

A process for the closed-circuit processing of all waste products from forest product plants, without air or water pollution. Solid wastes, typically bark, wood chips, sawdust or the like, are carbonized to a char. The char is at least in part treated in a second furnace to produce activated carbon, char not so treated being briquetted and sold. The activated carbon is used as a filter medium for plant effluent liquors, which can be recycled after solids removal. The carbon and entrained solids are re-

turned to one of the furnaces. Off-gas from all furnaces is passed to a boiler for steam generation, the spent gas



being passed through an absorber, if necessary, before release.

3,783,129

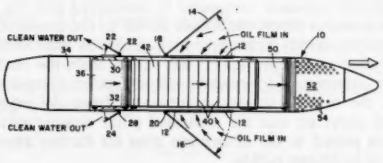
METHOD OF AND APPARATUS FOR THE RECOVERY OF OIL FROM WATER

Clinton O. Bunn, Denver, Colo., assignor to Col-Mont Corporation, Butte, Mont.

Filed Mar. 4, 1971, Ser. No. 121,000

Int. Cl. E02b *15/04*

U.S. Cl. 210—30 **17 Claims**



A matrix material is provided for recovering oil from water comprised of finely divided coal particles bonded in spaced relation by polyethylene. The oil sorption capability of the matrix is exceptionally high and the matrix is highly selective to oil in the presence of oil and water. A closed system is provided for forming the matrix material and for separating the sorbed oil from the matrix material for reuse of the latter. The matrix material can be in the form of a fixed or movable bed through which the oil and water pass for selective sorption of the oil, or the material can be dispersed on the water surface and collected following oil sorption.

3,783,130

SOLID LUBRICANTS

Marcel Torre, Geneva, Switzerland, assignor to Mefina S.A., Fribourg, Switzerland

No Drawing. Filed Feb. 19, 1971, Ser. No. 117,048

Claims priority, application Switzerland, Feb. 27, 1970, 2,884/70

Int. Cl. C10m *7/02, 7/06*

U.S. Cl. 252—12 **4 Claims**

A solid lubricant is formed of a mixture comprising one part by weight of hexagonal boron nitride to three parts by weight of sulfur. A finely divided powder of the boron nitride is dispersed in liquid sulfur between the melting point and 160° C., or between 360° C. and the boiling point of sulfur. The mixture, in the liquid or pasty state, can be applied to a material with a surface having retentive properties, and allowed to cool to form a lubricating layer.

3,783,131

CALCIUM-CONTAINING DISPERSIONS AND PROCESS

William M. Le Suer, Cleveland, Ohio, assignor to The Lubrizol Corporation, Wickliffe, Ohio

No Drawing. Continuation-in-part of application Ser. No. 118,490, Feb. 24, 1971, which is a continuation of application Ser. No. 864,894, Oct. 8, 1969, both now abandoned, which in turn is a continuation-in-part of application Ser. No. 681,028, Nov. 6, 1967, now Patent No. 3,515,669. This application June 29, 1972, Ser. No. 267,284

Int. Cl. C10m *1/32, 3/26*

U.S. Cl. 252—34.7 **14 Claims**

Process for preparing calcium dispersions in essentially inert diluents by contacting a basically reacting calcium compound with an inorganic acidic material in the presence of a stabilizing agent and promoter. A typical process comprises carbonating a mixture of calcium hydroxide, lower nitroalkane, alkanol, and the reaction product of polyisobutenyl-substituted-succinic anhydride and an alkylene polyamine. The calcium-containing dispersions thus produced are useful as additives for fuels and lubricants.

3,783,132

COMPOSITIONS COMPRISING PHOSPHATE ESTERS AND 2,6-DIAMINO-PYRIDINE AS AN ANTIOXIDANT

John F. Herbert, St. Louis, Mo., assignor to Monsanto Company, St. Louis, Mo.

No Drawing. Filed Mar. 24, 1972, Ser. No. 237,903

Int. Cl. C09k *3/00;* **C10m** *3/40*

U.S. Cl. 252—78 **10 Claims**

Compositions comprising a major amount of a phosphate ester base stock and an oxidation inhibiting amount of 2,6-diaminopyridine are useful as oxidation resistant functional fluids, particularly as aircraft hydraulic fluids.

3,783,133

RIGID FIRE RETARDANT POLYURETHANE FOAM

George Phillip Speranza, Austin, Tex., assignor to Jefferson Chemical Company, Inc., Houston, Tex.

No Drawing. Continuation-in-part of abandoned application Ser. No. 843,743, July 22, 1969. This application Oct. 15, 1971, Ser. No. 189,724

Int. Cl. C08g *22/48*

U.S. Cl. 260—2.5 AR **18 Claims**

A rigid fire retardant polyurethane foam having good dimensional stability, more than 90% closed cells and

a k factor less than 0.13 is produced by reacting with a polyol blend containing a sucrose polyol which is the reaction product of 8 to 12 mols of propylene oxide per mol of sucrose or a sucrose polyol which is the reaction product of 9 to 12 mols of propylene oxide per mol of sucrose an isocyanato terminated prepolymer formed by reacting an excess of a polymethylene polyphenyl isocyanate with a phosphorus-containing polyol in the presence of a blowing agent, surfactant and a catalyst of urethane formation.

The rigid fire retardant polyurethane foams thus formed are particularly useful for insulation purposes.

3,783,134

PROCESS FOR THE PREPARATION OF A BITUMINOUS COMPOSITION

Lowhardt A. A. Schoen, Geleen, Netherlands, assignor to Stamicarbon N.V., Heerlen, Netherlands

No Drawing. Filed Apr. 14, 1972, Ser. No. 244,002

Claims priority, application Netherlands, Apr. 17, 1971, 7105197

Int. Cl. C08f *45/52*; C08g *51/52*

U.S. Cl. 260—28 9 Claims

Polylactone-modified bitumen-ethylene based copolymer compositions and methods for their preparation are disclosed. The bitumen is a distillate of mineral oil products, the ethylene copolymer is preferably derived from ethylene and vinyl acetate and the polylactone has from 3 to 8 carbon atoms. The compositions have excellent bond strength, improved heat stability and reduced tendency to separate into two or more phases and are useful for forming molded articles, wire coatings and insulation and as adhesives in the building industry.

3,783,135

SYNTHESIS OF CODLING MOTH ATTRACTANT

Clive A. Henrick and John B. Siddall, Palo Alto, Calif., assignors to Zoecon Corporation, Palo Alto, Calif.

No Drawing. Filed Aug. 20, 1971, Ser. No. 173,662

Int. Cl. C07d *5/04, 7/04, 49/76*

U.S. Cl. 260—345.9 5 Claims

Stereospecific synthesis of an attractant for the codling moth by reacting a lithium salt of sorbic acid with 6-lithium hexan-1-ether to yield a trans-8-trans-10-dodecadien-7-one-1-ether which is reduced to yield a trans-8-trans-10-dodecadien-7-ol-1-ether which in turn is reduced via a 7-sulfonic acid ester to yield a trans-8-trans-10-dodecadien-1-ether and hydrolyzed to trans-8-trans-10-dodecadien-1-ol.

3,783,136

METHOD FOR PRODUCING UNSATURATED CARBOXYLIC ACID ESTERS

Takashi Inukai, Yokohama-shi, and Takao Nakamura, Yokosuka-shi, Japan, assignors to Chisso Corporation, Osaka, Japan

No Drawing. Filed Dec. 16, 1970, Ser. No. 98,945

Claims priority, application Japan, Dec. 24, 1969, 44/104,135

Int. Cl. C07c *67/00*

U.S. Cl. 260—410.9 R 11 Claims

Unsaturated monocarboxylic acid esters which are addition compounds of an olefin to a (meth)acrylic acid ester, or unsaturated dicarboxylic acid diesters which are addition compounds of an olefin or an unsaturated monocarboxylic acid ester to a (meth)acrylic acid ester, can be produced with a high yield and without forming isomer, by reacting said olefin or said unsaturated monocarboxylic acid ester with said (meth)acrylic acid ester, at a temperature ranging from room temperature to 250° C., in the presence of AlX_3 (wherein X is Cl or Br).

3,783,137

PROCESS FOR THE PREPARATION OF HETEROCYCLIC POLYMERS FROM AROMATIC TETRAMINES AND DERIVATIVES OF POLYCARBOXYLIC ACIDS

Arthur H. Gerber, University Heights, Ohio, assignor to Horizons Incorporated, a division of Horizons Research Incorporated

No Drawing. Filed June 9, 1971, Ser. No. 151,603

Int. Cl. C08g *33/02*

U.S. Cl. 260—47 CP 15 Claims

A process for the preparation of soluble heterocyclic polymers which comprises the reaction of an acid derivative of a di-, tri-, or tetra-basic acid with an aromatic tetramine acid salt in an aprotic polar solvent under mild reaction conditions, the acid derivative being added to the tetramine salt.

3,783,138

ARYLENE SULFIDE POLYMERIZATION PROCESS

John M. Miles and Fred T. Sherk, Bartlesville, Okla., assignors to Phillips Petroleum Company

Filed Dec. 13, 1972, Ser. No. 314,580

Int. Cl. C08g *23/00*

U.S. Cl. 260—79 11 Claims

An acid gas stream comprising hydrogen sulfide and impurities is passed into an absorption zone containing a polar organic solvent. A first overhead stream rich in impurities and a first bottoms stream comprising a hydrogen sulfide enriched polar organic solvent stream are withdrawn from the absorption zone. The first bottoms stream and an alkali metal hydroxide stream are passed into an arylene sulfide reactor in quantities sufficient to substantially convert all of the hydrogen sulfide to an alkali metal sulfide reactant. Subsequently a polyhalo-substituted aromatic compound is introduced into the reactor under reaction conditions suited to the preparation of arylene sulfide polymers. In a preferred embodiment an arylene sulfide polymer is withdrawn from the reactor in the presence of by-product salt and polar organic solvent, the organic solvent is separated from the arylene sulfide polymer, and the separated polar organic solvent is then passed to the absorption zone for further absorption of hydrogen sulfide.

3,783,139

PROCESS FOR SEPARATING CONSTITUENTS OF GRAIN FLOUR AND PRODUCTS PRODUCED THEREBY

John R. Moneymaker, Overland Park, Kans., and Curtis J. Forsythe, Raytown, Mo., assignors to Top-Scor Products, Inc., Kansas City, Kans.

No Drawing. Filed July 29, 1971, Ser. No. 167,474

Int. Cl. A23j *1/12*; C08h *1/00*; C13l *1/00*

U.S. Cl. 260—112 G 31 Claims

Process for separating grain flour into starch and protein fractions involving preparing a dough from the flour

and water in the presence of certain nonionic surfactants and washing the dough with additional water under manipulation.

3,783,140

INTRODUCTION OF ORGANIC GROUPS INTO ETHYLENICALLY UNSATURATED CARBOXYLIC ACIDS USING A GROUP VIII METAL SALT

Richard F. Heck, Wilmington, Del., assignor to Hercules Incorporated, Wilmington, Del.

No Drawing. Application Dec. 8, 1969, Ser. No. 883,288, now Patent No. 3,700,727, dated Oct. 24, 1971, which is a division of application Ser. No. 479,665, Aug. 13, 1965, now Patent No. 3,527,794, dated Sept. 8, 1970. Divided and this application Nov. 10, 1971, Ser. No. 197,542

Int. Cl. C07c *63/00*

U.S. Cl. 260—330.5 5 Claims

The process involves the introduction of an organic group into an ethylenically unsaturated carboxylic acid. As an example, a mixture of phenylmercuric chloride, lithium palladium chloride and acrylic acid is formed in acetonitrile as solvent. This results in the formation of an unstable adduct between the acrylic acid and phenylpalladium chloride. Decomposition of the adduct by maintaining it above its decomposition temperature provides cinnamic acid as the product.

3,783,141

3,7,9,11-TETRAMETHYL-10-ALKOXY OR BENZYLOXYTRIDECA - 2,7,11 - TRIENOIC ACIDS AND ESTERS CONTAINING A 4 POSITION TRIPLE OR DOUBLE BOND

Beverly Ann Pawson, Montclair, and Gabriel Saucy, Essex Fells, N.J., assignors to Hoffmann-La Roche Inc., Nutley, N.J.

No Drawing. Filed Dec. 17, 1971, Ser. No. 209,386

Int. Cl. C07c *59/18, 69/66;* A01n *9/24*

U.S. Cl. 260—410.9 R 16 Claims

Novel 3,7,9,11-tetramethyl-10-methoxy-trideca-2,7,11-trienoic acid esters containing a triple or double bond at the 4-position which are useful as insect hormonal agents prepared from the condensation product of tiglic aldehyde with methyl propenyl ether.

3,783,142

PROCESS FOR THE PREPARATION OF O-AMINOBENZONITRILE

Jan Magnus Bakke, Trondheim, Norway, and Harald Erik Heikmann, Karlskoga, Sweden, assignors to Aktiebolaget Bofors, Bofors, Sweden

No Drawing. Filed May 19, 1971, Ser. No. 145,059

Claims priority, application Sweden, June 1, 1970, 7,549/70

Int. Cl. C07c *121/02*

U.S. Cl. 260—465 E 2 Claims

o-Aminobenzonitrile is obtained from o-nitrotoluene by heating the latter with ammonia at about 350–550° C. in the presence of a dehydration catalyst.

3,783,143

N-CYCLOPROPYLMETHYL-PHENYLUREAS

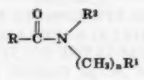
Lester L. Maravetz, Westfield, N.J., assignor to Esso Research and Engineering Company

No Drawing. Original application July 27, 1970, Ser. No. 58,672, now Patent No. 3,728,836. Divided and this application Feb. 12, 1973, Ser. No. 331,723

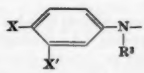
Int. Cl. C07c *127/20*

U.S. Cl. 260—553 A 3 Claims

Compounds characterized by the following structural formula:



wherein R is one selected from the group consisting of Y—CH_2 and



Y is one selected from the group consisting of chlorine, bromine and fluorine, X is one selected from the group consisting of hydrogen, chlorine, CF_3, C_1 to C_4 alkyl, bromine, C_1 to C_4 alkoxy, and C_1 to C_4 alkylthio, and X′ is one selected from the group consisting of chlorine, hydrogen, CF_3, and bromine; R^1 is C_2 to C_4 cycloalkyl optionally substituted with C_1–C_3 alkyl, chlorine, bromine, R^2 is one selected from the group consisting of hydrogen, and C_1 to C_4 alkyl, cyclopropyl, cyclopropylmethyl and C_1 to C_3 alkoxy, and R^3 is one selected from the group consisting of hydrogen, C_1–C_3 alkyl, cyclopropyl, cyclobutyl, cyclopropylmethyl or cyclobutylmethyl, optionally substituted with C_1 to C_3 alkyl, chlorine, and bromine; *n* is either 0 or 1.

These compounds have been found to possess biological activity and have been found to be useful as herbicides.

3,783,144

PROCESS FOR PRODUCING FLUORONITRO ALCOHOL COMPOUNDS

Marion E. Hill, Palo Alto, and Leonard O. Ross, Sunnyvale, Calif., assignors to the United States of America as represented by the United States Atomic Energy Commission

No Drawing. Original application Aug. 13, 1968, Ser. No. 752,181. Divided and this application Oct. 16, 1970, Ser. No. 81,613

Int. Cl. C07c *31/34*

U.S. Cl. 260—633 1 Claim

Process wherein a selected α-fluoronitrocarboxylic acid ester is reduced by reaction with sodium borohydride in a selected solvent system containing from about 25 to about 75% by volume of water to preferentially yield α-fluoronitro-alcohol compound.

3,783,145

THERMOPLASTIC MOLDING COMPOSITIONS ON THE BASIS OF POLYOXYMETHYLENES

Hans-Hermann Grossmann, Oberems; Karlheinz Burg, Langenhain/Taunus, and Ernst Wolters, Frankfurt/Main, all of Germany, assignors to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning, Frankfurt/Main, Germany

Filed Nov. 24, 1971, Ser. No. 202,020

Claims priority, application Germany, Nov. 26, 1970, P 20 58 128.6

Int. Cl. C08g *51/04*

U.S. Cl. 260—37 AL 4 Claims

The invention relates to thermoplastic molding compositions on the basis of polyoxymethylenes containing antimony trioxide as a nucleating agent. The compositions may be used to produce shaped articles with improved properties.

3,783,146

AMMONIUM POLYPHOSPHATE-PHOSPHONIUM BROMIDE-ALKOXYALKANOLAMINE AS FLAME-RETARDANTS FOR POLYOLEFINS

Christos Savides, and Joseph Fredrick Cannelongo, both of Piscataway, N.J., assignors to American Cyanamid Company, Stamford, Conn.

Filed Apr. 3, 1972, Ser. No. 240,815

Int. Cl. C09k *3/28*

U.S. Cl. 260—45.9 R 12 Claims

Flame-retardant compositions which do not "plate-out" on metal surfaces comprising (A) monophosphonium halides, diphosphonium halides or various diphosphoniacyclohexane dibromides and diiodides, (B) ammonium polyphosphate, and (C) an alkoxyalkanolamine and polyolefins containing said compositions, are disclosed.

3,783,147

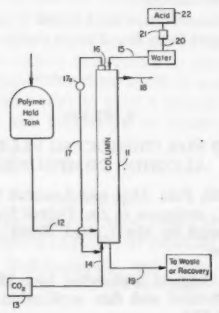
REMOVAL OF CATALYST RESIDUE FROM POLYPHENYLENE ETHERS

David J. Calicchia, Stillwater, and Michael M. Modan, Albany, both of N.Y., assignors to General Electric Company, Pittsfield, Mass.

Filed Sept. 24, 1971, Ser. No. 183,321

Int. Cl. C08g *23/18*

U.S. Cl. 260—47 ET 14 Claims



A method is provided for the separation and recovery of metal-amine complex catalyst residues in a process for the formation of polyphenylene ethers by an oxidative coupling polymerization reaction. The method comprises extracting the catalyst residues by contact of the reaction solution with carbonic acid solution, batchwise, or continuously in a cascade of mixers-settlers or a liquid-liquid extraction column.

3,783,148

PROCESS FOR THE PREPARATION OF SYMMETRICAL AZO COMPOUNDS

Julius J. Fuchs, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

Continuation-in-part of Ser. No. 16,950, March 5, 1970, abandoned, which is a continuation-in-part of Ser. No. 644,097, June 7, 1967, abandoned, which is a continuation-in-part of Ser. No. 393,766, Sept. 1, 1964, abandoned. This application Aug. 31, 1971, Ser. No. 176,701

Int. Cl. C07c *107/00*

U.S. Cl. 260—192 8 Claims

An improved process for the preparation of symmetrical azo compounds comprising coupling the corresponding amino compound, such as 1-aminocyclohexanecarbonitrile in the presence of a hypochlorite, such as sodium hypochlorite, in a solvent containing at the beginning of the reaction at least 95 percent by volume and at the end of the reaction at least 70 percent by volume of a C_1–C_2 alcohol at a temperature between the freezing point of the reaction mixture and 50°C.

3,783,149

α-L TALOMETHYLOSIDES OF CERTAIN GENINS OF THE CARDENOLIDE AND BUFADIENOLIDE SERIES

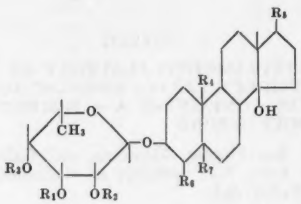
Joachim Heider, Warthausen-Oberhofen; Wolfgang Eberlein, Biberach, Riss, both of Germany, and Walter Kobinger, Vienna, Austria, assignors to Boehringer Ingelheim GmbH, Ingelheim/Rhine, Germany

Filed Oct. 27, 1971, Ser. No. 192,992

Int. Cl. C07c *173/00*

U.S. Cl. 260—210.5 7 Claims

Compounds of the formula



wherein R_1 and R_2 are each hydrogen or lower alkanoyl or, together with each other,

where

A is hydrogen or lower alkyl,

B is lower alkyl or phenyl, or

A and B, together with each other and the carbon atom to which they are attached, form a 6- to 7-membered saturated carbocyclic ring,

R_3 is hydrogen, lower alkanoyl or heterocyclic carboxylic acid acyl, such as isonicotinoyl or benzofuran-2-carbonyl,

R_4 is methyl, formyl or hydroxymethyl,

R_5 is the bufadienolide radical; or when R_4 is the methyl group or at least one of the radicals R_1 to R_3 is other than hydrogen, also the cardenolide radical,

R_6 is hydrogen or, together with R_7, a double bond, and

R_7 is hydroxyl or, when R_5 is the cardenolide radical, also hydrogen;

the compounds are useful as cardiotonics.

3,783,150
MONOFUNCTIONALLY-BLOCKED TRIS (2-HYDROXYALKYL) ISOCYANURATES AND POLYESTES THEREOF
John M. Kolyer, Convent, and Albert A. Kveglis, Pine Brook, both of N.J., assignors to Allied Chemical Corporation, New York, N.Y.
Division of Ser. No. 89,532, Nov. 13, 1970, Pat. No. 3,683,048, which is a continuation-in-part of Ser. No. 725,163, April 29, 1968, abandoned. This application Dec. 13, 1971, Ser. No. 207,640
Int. Cl. C07d 55/38
U.S. Cl. 260—248 NS 6 Claims

Monofunctionally-blocked tris(2-hydroxyalkyl)isocyanurates, made by reaction with equimolar amount of a monocarboxylic acid, are statistically difunctional alcohols useful for making polyesters. Use of an α-ethylenically unsaturated polycarboxylic acid or an α-ethylenically unsaturated monocarboxylic acid blocking agent in conjunction with a cross-linking monomer gives casting resins which are heat resistant, self-extinguishing, weather resistant, and color stable.

3,783,151
ISOCYANATE-MODIFIED ESTERS
Daniel J. Carlick, Berkeley Heights; Frank Marra, Wayne, both of N.J., and Gerhard E. Sprenger, North Stonington, Conn., assignors to Sun Chemical Corporation, New York, N.Y.
Continuation-in-part of Ser. No. 850,633, Aug. 15, 1969, abandoned. This application Mar. 23, 1971, Ser. No. 127,357
Int. Cl. C07c 125/06
U.S. Cl. 260—471 C 4 Claims

Isocyanate-modified polyethylenically unsaturated esters in combination with photoinitiators are radiation-curable compositions useful as printing inks, printing plates, coating compositions, adhesives, and the like.

3,783,152
N-ARYLENE POLYCARBAMATE
Donald W. Larsen, Ashton, Md., assignor to W. R. Grace & Co., New York, N.Y.
Division of Ser. No. 81,601, Oct. 16, 1970, abandoned. This application Apr. 27, 1972, Ser. No. 248,297
Int. Cl. C07c 101/26, 101/44
U.S. Cl. 260—471 C 1 Claim

The invention disclosed is for a method of preparing polythioether-polyurethane products from a new and novel class of polyene compositions which are formed as the reaction product of a monomeric polyisocyanate with an unsaturated monohydroxy or monoamino compound. The new polyenes may be compounded with a polythiol component having molecules containing at least two thiol groups per molecule. The curable polymer composition may be cured by a free radical generator such as actinic light to form a solid polythioether-polyurethane elastomeric or resinous product.

3,783,153
CATALYTIC PROCESS FOR UNSATURATED ACIDS
Jamal S. Eden, Akron, Ohio, assignor to The B. F. Goodrich Company, New York, N.Y.
Filed June 27, 1969, Ser. No. 837,356The portion of the term of this patent subsequent to Sept. 10, 1985, has been disclaimed.
Int. Cl. C07c 51/32, 57/04
U.S. Cl. 260—533 N 5 Claims

Unsaturated acids in high yields along with smaller yields of aldehydes, as acrylic acid and acrolein or methacrylic acid and methacrolein, are prepared in excellent yields by the oxidation of an olefin as propylene or isobutylene in the presence of a catalyst containing cobalt molybdate, tellurium oxide and phosphorus oxide.

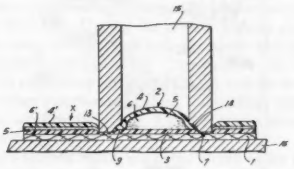
3,783,154
PRODUCTION OF CITRIC ACID
Richard H. Wiley, New York, N.Y., assignor to Miles Laboratories, Inc., Elkhart, Ind.
Filed June 28, 1971, Ser. No. 157,650
Int. Cl. C07c 59/16
U.S. Cl. 260—535 P 3 Claims

Citric acid can be produced by reacting maleic acid, fumaric acid, maleic anhydride or esters of maleic acid with a peroxide compound and then heating the resulting reaction mixture. Citric acid can then be recovered from the resulting products.

3,783,155
SINTERED CUPRIC OXIDE MASSES
Brian G. Frock, Dayton, Ohio, assignor to The National Cash Register Company, Dayton, Ohio
Filed Dec. 3, 1971, Ser. No. 204,706
Int. Cl. B29c 6/00
U.S. Cl. 265—65 6 Claims

Compacted, sintered cupric oxide masses are disclosed. The masses are prepared from copper oxide powder under high pressure followed by heating at high temperatures. Various regions of the mass can be switched to an electrically conductive copper state. This invention could easily be used for the storage of electrical information as well as for optical memory.

3,783,156
METHOD OF MAKING BEADED ARTICLE
Minoru Kuroda, Amagasaki, Japan, assignor to Nishizawa Shoji Co. Ltd., Osaka, Japan and The Dimension Weld International Corporation, New York, N.Y.
Continuation of Ser. No. 808,128, March 18, 1969, abandoned. This application Jan. 24, 1972, Ser. No. 220,300
Claims priority, application Japan, Dec. 19, 1966, 41/83085
Int. Cl. B29c 17/10, 21/00, 27/02; B32b 31/18, 31/20
U.S. Cl. 264—94 8 Claims



A beaded article having a support layer on which a bottom layer and a top layer of sheet material are superimposed. The top layer is heat bonded to the bottom layer and both are heat bonded to the support layer along a circumferentially complete narrow annular zone. In the area circumscribed by the annular zone the top layer is provided with a raised self-supporting bead-like prominence which contains ornamental particles visible to a viewer because the top layer is of transparent material.

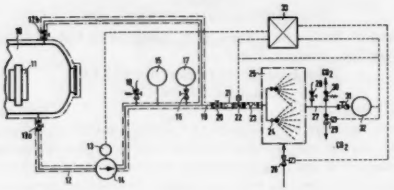
3,783,157
BLOW MOLDING PROCESS

Karl Frank, 8, Lohhohl, Linz, Rhineland, Germany

Continuation of Ser. No. 868,672, Oct. 21, 1969, abandoned. This application Jan. 28, 1972, Ser. No. 221,793

Int. Cl. B29c *17/07, 25/00*

U.S. Cl. 264—97 **2 Claims**



An improved process and apparatus for the production of blow molded shaped articles from a synthetic thermoplastic polymeric material are provided. The hollow shaped article following blowing is cooled through the introduction of a liquified coolant (e.g., carbon dioxide) in the form of liquid droplets in the absence of coolant expansion which contacts the internal surface of the hollow article while in liquified form. Contrary to the prior art the pressure within the hollow shaped article is maintained above that of the triple point of the coolant throughout the entire cooling operation. Disadvantages of the prior art, such as uneven cooling resulting from a phase change in the coolant, are effectively eliminated.

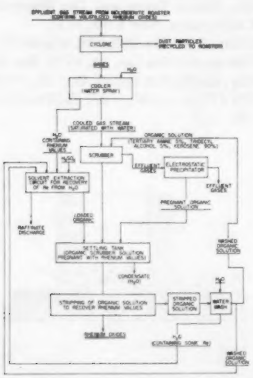
3,783,158
PROCESS FOR RECOVERING VOLATILIZED METAL OXIDES FROM GAS STREAMS

Ronald N. Platzke, and Henry Rush Spedden, both of Salt Lake City, Utah, assignors to Kennecott Copper Corporation, New York, N.Y.

Filed Dec. 27, 1971, Ser. No. 212,462

Int. Cl. C01g *47/00*

U.S. Cl. 423—49 **10 Claims**



Certain organic compounds in solution other than aqueous are used to directly recover oxides of metals that form anionic species therewith, from gas streams carrying such metal oxides in volatilized form. The organic compounds are selected from the group consisting of organic phosphates and those alcohols and water-insoluble amines which have carbon chains made up of a minimum of four carbon stoms. The tertiary amines and tributyl phosphate are especially effective. Although the process is particularly applicable to rhenium, other typical metals are selenium, lead, zinc, and gallium. One or more of such organic compounds is dissolved in a suitable organic vehicle, such as kerosene, and the resulting organic solution is brought into intimate contact with the gas stream. The resulting solution pregnant with the metal oxide values is treated, as by solvent extraction procedures, for the recovery of such metal values.

3,783,159
PHARMACEUTICAL COMPOSITIONS CONTAINING KANAMYCIN EMBONATE

Giuseppe Guadagnini, Sannazzaro dei Burgondi, and Franco Fabi, Milan, both of Italy, assignors to Pierrel S.p.A., Milano, Italy

Division of Ser. No. 62,147, Aug. 7, 1970, Pat. No. 3,691,151. This application Mar. 23, 1972, Ser. No. 237,575

Int. Cl. A61k *21/00*

U.S. Cl. 424—181 **4 Claims**

The present invention relates to an a bacteriostatic pharmaceutical composition containing kanamycin embonate.

3,783,160
DIETHYL ALLYL PHOSPHONATE AS AN ANTI-MICROBIAL AGENT

Al F. Kerst, and John D. Douros, Jr., both of Littleton, Colo., assignors to The Gates Rubber Company, Denver, Colo.

Filed Oct. 28, 1970, Ser. No. 84,903

Int. Cl. A01n *9/36*

U.S. Cl. 424—219 **52 Claims**

Diethyl alpha allyl phosphonate can be used to inhibit and/or prevent growth of undesirable algae, bacteria, fungi, yeast, and other microorganisms. This invention is particularly concerned with the bacteriostatic and bactericidal properties of diethyl alpha allyl phosphonate compounds against species of *Proteus, Salmonella, Shigella, Staphylococcus* and *Xanthomonas.*

3,783,161
DERIVATIVES OF DIBENZO(B,F) PYRROLO (3,4-D)AZEPINE AS CNS - DEPRESSANTS

Walter Schindler, deceased, late of Basel, Switzerland; Hans Blattner, and Leonhard Gysin, both of Basel, Switzerland (executors), assignors to Ciba-Geigy Corporation, Ardsley, N.Y.

Division of Ser. No. 142,390, May 11, 1971. This application Aug. 23, 1972, Ser. No. 283,011

Claims priority, application Switzerland, May 13, 1970, 7069/70The portion of the term of this patent subsequent to Jan. 18, 1989, has been disclaimed.

Int. Cl. A61k *27/00*

U.S. Cl. 424—274 **2 Claims**

Compounds of the class of 1,2,3,8-tetrahydrodibenzo[b,f]pyrrolo[3,4-d]azepines which may be substituted in the 5-/ or 6-/ and/or 8-position by chlorine, the trifluoromethyl group or alkyl groups respectively or the allyl group respectively and pharmaceutically acceptable addition salts thereof have a depressant effect on the central nervous system; they can be prepared from the corresponding N-substituted 10,11-bis-bromomethyl-5H-dibenz[b,f]azepines and a primary amine; the compounds are active ingredients of pharmaceutical compositions.

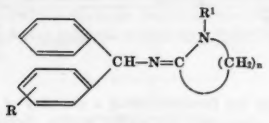
3,783,162

HYPOGLYCEMIC COMPOSITIONS CONTAINING BENZHYDRYL-LACTAMIMIDE DERIVATIVES

Johann Martin Grisar, and Thomas R. Blohm, both of Cincinnati, Ohio, assignors to Richardson-Merrell Inc., New York, N.Y.

Filed Sept. 13, 1971, Ser. No. 180,118
Int. Cl. A61k 27/00
U.S. Cl. 424—267 7 Claims

Pharmaceutical compositions with hypoglycemic and diuretic properties and methods for their use are disclosed herein. The active ingredients of the compositions are compounds of the formula



wherein R is hydrogen or lower alkoxy of from one to six carbon atoms, and when R represents lower alkoxy the substituent alkoxy radical may be attached at the ortho-, meta- or para-position of the phenyl radical; R^1 is hydrogen or lower alkyl of from one to four carbon atoms; *n* is a whole integer of from 3 to 11; or pharmaceutically acceptable acid addition salts of said compounds and individual optical isomers where applicable.

3,783,163

AROMATIZING EDIBLE OILS

Jayantilal M. Patel, Cincinnati, Ohio, assignor to The Procter & Gamble Company, Cincinnati, Ohio

Filed Apr. 28, 1972, Ser. No. 248,558
Int. Cl. A23f 1/04
U.S. Cl. 426—221 11 Claims

Edible oils are aromatized by adding the oil to a cryogenic fluid to form a slurry, adding an aroma-bearing frost to the slurry, and allowing the mixture to equilibriate at temperatures above the boiling point of the cryogenic fluid for a period of time sufficient to evaporate the cryogenic fluid leaving a residue of aroma-enhanced oil.

3,783,164

PROCESS FOR PRODUCING MILLED STABILIZED WHEAT GERM

Edward L. Galle, St. Paul, Minn., assignor to The Pillsbury Company, Minneapolis, Minn.

Filed Sept. 12, 1968, Ser. No. 760,745
Int. Cl. A23l 1/10
U.S. Cl. 426—312 5 Claims

Wheat germ is recovered from conventionally milled wheat. The germ is ground in an impact mill such as the Hurricane Pulverizer, Raymond Mill or Pulvocron. The ground germ is heated to about 200° F. while suspended in air either by introducing hot air into the grinder inlet or by expelling the ground germ into a stream of hot air (about 600 cubic feet of 300° F. air per pound of germ). The ground germ dried to less than 6 percent moisture content is then collected in a cyclone and preferably sifted to remove bran particles from the powdered product.

3,783,165

SOLUBLE COFFEE ANTIFOAM AND SLUDGE SUSPENDING AGENTS

Alexander Cascione, Yonkers, N.Y., assignor to General Foods Corporation, White Plaines, N.Y.

Filed June 1, 1972, Ser. No. 258,715
Int. Cl. A23f 1/04
U.S. Cl. 426—329 10 Claims

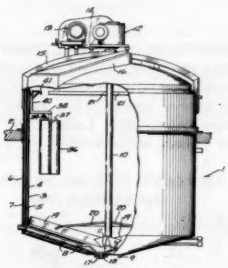
Antifoam and sludge-suspending compositions comprising substituted lactylates are incorporated into instant coffee products.

3,783,166

METHOD FOR MAKING CHEESE

Norman J. Peters, Fond Du Lac, Wis., assignor to DEC International, Inc., Madison, Wis.

Division of Ser. No. 819,148, April 25, 1969. This application Aug. 18, 1971, Ser. No. 172,932
Int. Cl. A01j 25/00, 25/10
U.S. Cl. 426—491 3 Claims



A method of making cheese utilizing a closed vessel having a central vertical shaft and agitator paddles are attached to the lower end of the shaft. During the cheese making process, a portion of the whey is withdrawn from the upper end of the vat while the agitators are operating. To withdraw the whey, a tube is inserted into the upper end of the vat and the lower end of the tube carries a perforated cylindrical strainer which may be covered by a fabric filter bag. Whey is drawn through the strainer and into the tube.

A generally S-shaped baffle is located ahead of the cylinder in the direction of agitator rotation and serves to protect the strainer from direct impingement by the circulating whey.

ERRATA

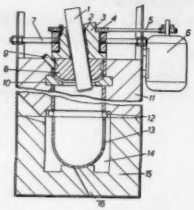
For Classes 426—70 thru 426—140 see:
Patents Nos. 3,782,962 thru 3,782,977

ELECTRICAL

3,783,167
HIGH TEMPERATURE TREATMENT OF MATERIALS

Jozef Kazimierz Tylko, Faringdon, England, assignor to Tetronics Research and Development Company Limited, Faringdon, England

Filed Feb. 14, 1972, Ser. No. 225,892
Claims priority, application Great Britain, Feb. 16, 1971, 4,789/71; Feb. 16, 1971, 4,790/71; Aug. 18, 1971, 38,855/71
Int. Cl. H05b *7/00*
U.S. Cl. 13—1 **27 Claims**

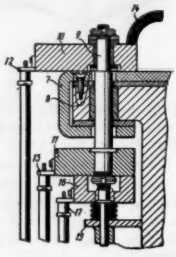


Apparatus for establishing a substantially expanded electric arc discharge between a circulating electrode which includes the use of plasma guns, and a coacting stationary annular electrode through which the discharge effluents emerge. Means for introducing particulate material into the expanded arc discharge and operating the latter as an expanded arc furnace for various chemical reactions including the reduction and separation of ores, melting, refining, comminuting, spheroidizing and coating.

3,783,168
ELECTROSLAG REMELTING PLANT

Boris Izrailevich Medovar, bulvar Lesi Ukrainki, 2, kv. 8; Viktor Andreevich Popov, ulitsa Andreevskaya, 11, kv. 2; Jury Fedorovich Alferov, bulvar Lepse, 29, kv. 64; Alexei Georgievich Bogachenko, ulitsa Leskova, 9, kv. 1, and Jury Vadimovich Latash, ulitsa Artema, 55, kv. 23, all of Kiev, U.S.S.R.

Filed July 7, 1972, Ser. No. 269,816
Int. Cl. H05b *3/60*
U.S. Cl. 13—9 **1 Claim**

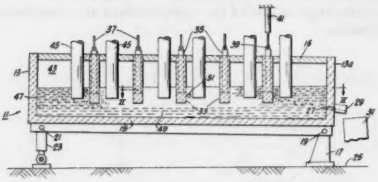


An electroslag remelting plant comprising two shoes insulated from each other and interconnected by means of a rigid joint, one of them being connected by a flexible coupling to current-collecting means of the first electrode and, on being traversed, being allowed to establish a contact with the other current-collecting means of second electrode, whereas the second shoe, on being traversed, establishes a contact with a current-collecting means of the second electrode or with the third spring-biased shoe associated electrically with a base plate.

3,783,169
METHOD AND APPARATUS FOR THE CONTINUOUS FLUIDIZING OF STEEL

Henry S. Newhall, Allison Park, Pa., assignor to Koppers Company, Inc., Pittsburgh, Pa.

Filed Sept. 5, 1972, Ser. No. 286,751
Int. Cl. F27b *3/06*
U.S. Cl. 13—10 **8 Claims**

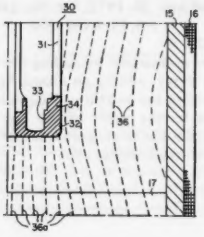


An electric arc furnace having a plurality of in-line electrodes are separated by baffle plates. Scrap metal or prereduced iron ore is placed in the furnace and a thick high-temperature slag covers the molten scrap or reduced ore which is melted by heat generated at the electrodes. The current passing from one electrode to another through the molton metal and slag, inasmuch as the baffles prevent short circuit taking place through the scrap metal.

3,783,170
ELECTRIC ARC FURNACE APPARATUS HAVING A SHAPED MAGNETIC FIELD FOR INCREASING THE UTILIZED AREA OF THE ARCING SURFACE OF AN ELECTRODE AND IMPROVING THE HEATING EFFICIENCY

Frank J. Kolano, North Braddock, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Sept. 22, 1972, Ser. No. 291,470
Int. Cl. H05b *7/08*
U.S. Cl. 13—18 **10 Claims**



The unit heat flux to a fluid-cooled electrode and the heat flux to the material being heated by a diffused arc column operating at a given electric current level are controlled by a magnetic field coaxial with the electrode, part of the flux lines of which pass through both the arcing surface of the electrode and the molten bath. The magnetic field pattern at the electrode and near the electrode is shaped into desired configurations to accomplish the purposes of the invention by the use of high permeability material in the electrode in some embodiments, and permanent magnets in the electrode in other embodiments. Where high permeability material is employed, the material may form part of the electrode tip and be substantially symmetrical around the inside and outside diameter of

the tip, or may be so proportioned as to provide an outside diameter biased electrode tip. The tip may be constructed of copper and high permeability material disposed within the tip either in the form of a short ring, or axially and radially extending material occupying a substantial portion of the volume of the tip and the supporting column. Where a permanent magnet is employed, it is disposed in the tip, and the north and south poles of the permanent magnet may be axially disposed with respect to each other with their axis parallel to the axis of the electrode. The poles of the permanent magnet are selectively in opposition to a field set up in the furnace by a solenoid, or selectively in polarity adding to the field set up in the furnace by the solenoid. Additionally, the permanent magnet may have its north and south poles lying perpendicular to the axis of the electrode. Selectively, the north pole of the permanent magnet may be on the side thereof adjacent the axis of the electrode, or may be on the side thereof farthest from the axis of the electrode, nearer to the wall of the furnace and nearer to the solenoid setting up a magnetic field within the furnace.

3,783,171
SILICA BRICKS

Walter Klein, Duisburg-Rahm, Germany, assignor to Didier-Werke A.G., Wiesbaden, Germany

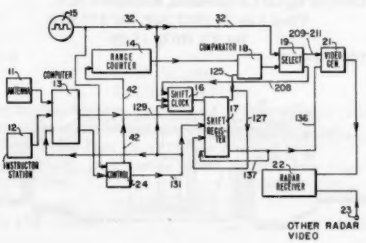
Filed Nov. 15, 1971, Ser. No. 198,980
Claims priority, application Germany, Nov. 14, 1970, P 20 56 120.0
Int. Cl. F27d *1/06*
U.S. Cl. 13—35 **1 Claim**

An electric furnace in which at least the cover is lined with silica bricks impregnated with a material containing carbon which releases hydrocarbons when heated.

3,783,172
RADAR SIMULATOR

Frank H. Bernstein, Baltimore, Md., assignor to The Singer Company, Binghamton, N.Y.

Filed July 21, 1971, Ser. No. 164,749
Int. Cl. G09b *9/00*
U.S. Cl. 35—10.4 **8 Claims**

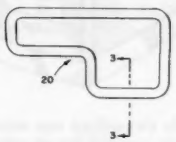


A device for simulating radar targets comprises a general-purpose digital computer and a special interface which generates suitable video signals in response to the computer outputs to drive a radar set. In a radar simulator in which several different types of radar targets are simulated, the apparatus of this invention is used to generate the video signals which will display a plurality of mobile targets on the radar set. A limited number of such targets are displayed, and the characteristics of these targets are entered into the computer. Information representing the initial locations of the selected targets and their directions and speeds of movement is inserted into the computer from a remote station, and the computer performs the necessary navigational computations to continually determine the location of the radar set in the gaming area, the bearing of each of the targets from the radar set, and the bearing of the radar antenna at any time. The ranges of all of the targets on a particular bearing are entered by the computer into a register in the order of increasing range from the radar set. When the simulated radar antenna bearing agrees with the target bearing, the stored target ranges are read from the registor and are converted into video signals to drive the radar set.

3,783,173
GASKET-ELECTRICALLY CONDUCTIVE

Robert C. Twomey, Los Angeles, Calif., assignor to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed May 19, 1972, Ser. No. 255,123
Int. Cl. H05k *9/00*
U.S. Cl. 174—35 GC **2 Claims**

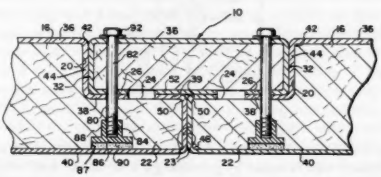


An electrically conductive elastomer gasket that is reinforced to lend strength to the gasket and enable the gasket to have the ability to hold a pre-set shape. This is accomplished by either sandwiching an electrically conductive reinforcement metal layer between two electrically conductive elastomer outer layers or by providing an electrical conductor about which an electrically conductive elastomer is formed or extruded.

3,783,174
DOUBLE ISOLATED SHIELDING ENCLOSURE

Erik A. Lindgren, 728 Milford St., Evanston, Ill.

Filed Nov. 15, 1972, Ser. No. 306,607
Int. Cl. H05k *9/00*
U.S. Cl. 174—35 MS **10 Claims**



A double isolated electrically shielded screen room in which all panels are identical and interchangeable for assembly with all overlapping shielding contacts between contiguous shielding members disposed in planes parallel to the respective panels and secured under compression in a direction perpendicular to each panel with great isolation efficiency by outwardly concealed clamping means applied from inside the room assembly so that the floor and space around the room is also economically conserved.

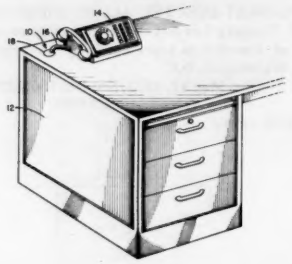
3,783,175
ELECTRICAL CORD GUIDE ASSEMBLY

Jay Timmons, Palos Verdes Estates, Calif., assignor to Hiebert, Inc., Torrance, Calif.

Filed Apr. 28, 1972, Ser. No. 248,640
Int. Cl. A47b *19/04*
U.S. Cl. 174—48 **10 Claims**

An assembly is disclosed for guiding an electrical cord such as a multiwire telephone cord through a generally planar ele-

ment such as the top of a desk or other piece of office furniture. The assembly includes a generally cylindrical sleeve adapted to be disposed within a circular aperture in the desk top so as to define a seating member and having a hollow interior of sufficient size to accommodate any portion of the electrical cord such as a relatively large plug at the leading end thereof as the cord is passed therethrough. The assembly also



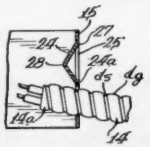
includes a generally disk-shaped cap which functions as a securing member by securing the electrical cord within a recess in the edge thereof and against the inside of the sleeve as the cap is mounted over one end of the sleeve and secured in place via a spring which is mounted on one side of the cap and which engages opposite sides of the sleeve interior when expanded.

3,783,176

CONNECTION BETWEEN ELECTRICAL CONDUIT AND ENCLOSURE, AND METHOD

Alvin R. Lund, and Jack Kaufman, both of Chicago, Ill., assignors to Markstone Manufacturing Company

Filed Dec. 4, 1972, Ser. No. 311,848
Int. Cl. H02g *3/18*
U.S. Cl. 174—65 R **14 Claims**



A connection between a metal electric conduit and a metal enclosure wall is made by punching a hole in the wall which is circular except for the end portion of a tongue that extends into one side of the circle, shearing two slits in the wall which intersect the hole and define the sides of the tongue, bending the tongue out of the plane of the wall sufficiently to withdraw its end portion from the hole so the latter is effectively round, inserting the end of the conduit, and pressing the tongue back substantially into the plane of the wall to clamp the conduit in the hole.

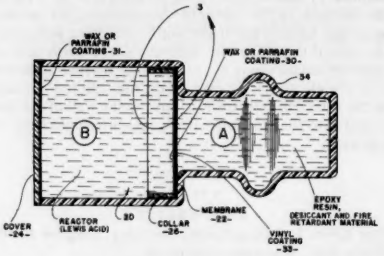
3,783,177

INSULATING CAP

James W. Kelso, Los Angeles, Calif., assignor to Cintex Products, Inc., Los Angeles, Calif.

Continuation-in-part of Ser. No. 286,027, Sept. 5, 1972, abandoned. This application Feb. 26, 1973, Ser. No. 335,649
Int. Cl. H02g *15/08*
U.S. Cl. 174—87 **8 Claims**

An improved insulating cap is provided for the spliced exposed ends of a pair of insulated electric wires. The cap may be readily fitted over the spliced ends, and it is firmly and permanently held in place to provide a complete insulating cover for the exposed ends. The cap of the invention is provided with two internal chambers separated by a membrane. An insulating adhesive material, such as an epoxy resin, is held in a liquid condition in one of the chambers; and a hardener activator for the epoxy resin is held in the other chamber. The membrane provides an air tight and moisture tight seal for the activator. When the cap is fitted over the exposed spliced ends of the wires, the ends pierce the membrane and cause the activator and resin to run together so that the resin may be activated and cured rapidly to a hard insulating condition. The membrane closing the reactor chamber is treated with a coating, such as paraffin, to render the membrane impervious to corrosive attack from the activator. The activator is selected to set up an exothermic reaction when mixed with the resin, so as to provide for the rapid and thorough intermixing of the two ingredients for a complete bonding of the resin. In addition, the reaction is such that the resin forms into a firm bond within a matter of seconds, so as to facilitate the use of the cap.

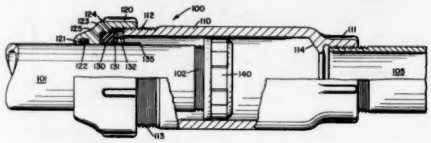


3,783,178

EXPANSION JOINT FOR CONNECTING RIGID CONDUIT WITH GROUNDING CONTINUITY

Robert A. Philibert, Rockville Centre; Robert Polimine, and Eversly V. Parkins, both of Brooklyn, all of N.Y., assignors to General Signal Corporation, Rochester, N.Y.

Filed Aug. 3, 1972, Ser. No. 277,828
Int. Cl. H02g *15/08*
U.S. Cl. 174—86 **9 Claims**



In order to protect personnel, promote safety and prevent equipment damage it is conventional for electrical conduits to be grounded with a high integrity ground. Because of the expansion and contraction which may take place in electrical conduits it is sometimes necessary to provide telescoping or expansion joints. The present invention relates to a rain-tight expansion joint which provides a high integrity ground without the use of an external bonding jumper. A grounding ring is included in a head assembly and a controlled pressure is applied so that the grounding ring makes firm electrical contact with the head portion of the expansion joint and with the conduit. Grounding rings fabricated from sheet metal and tubular stock are disclosed. An O-ring is used in the head assembly to contact the conduit and protect the interior of the expansion joint from the weather and atmospheric conditions. Means are provided for limiting the travel of the conduit so that the tapered

and threaded end thereof cannot enter the sliding contact region and jeopardize the integrity of the ground.

3,783,179

LITZ WIRE FOR HIGH-FREQUENCY COILS WOUND WITH WATER-REPELLENT TEXTILE FIBRES IMPREGNATED WITH A WATER-REPELLENT AGENT

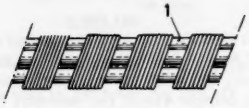
Wilhelm Ferber, Aszlar; Johannes Kahnt, and Gunter Jost, both of Wetzlar, all of Germany, assignors to U.S. Philips Corporation, New York, N.Y.

Filed Aug. 18, 1972, Ser. No. 281,721

Claims priority, application Germany, Sept. 25, 1971, P 21 48 057.9

Int. Cl. H01b 7/28

U.S. Cl. 174—121 A 4 Claims



In high-frequency coils wound from litz wires which each comprise a plurality of strands which each have a diameter of less than 50 μm, the strands being insulated from one another (enameled) and being wound round with threads consisting of textile fibres, corrosion damage due to defect in the enamel coating are prevented by impregnating the threads with a wetting water-repellent agent which is a thin liquid at room temperature, for example undiluted chemically pure paraffin oil or a mixture of methacrylate, dimerised rosin, Japan wax and enamel petrol, the spaces between the thread layers not being filled with the agent.

3,783,180

FLUTED CABLE

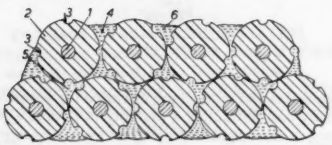
Lyndon Reginald Spicer, Llandevaud, Wales, assignor to International Standard Electric Corporation, New York, N.Y.

Filed June 13, 1972, Ser. No. 262,383

Claims priority, application Great Britain, July 15, 1971, 33189/71

Int. Cl. H01b 7/00

U.S. Cl. 174—110 R 4 Claims



A cable includes at least one elongated groove formed in the insulation around a conductor to provide radial and helical passages for impregnation by a viscous material such as wax. This is used for wire-guided devices connected to insulated conductors which are wound on reels of multi-layer close helical coils. The wax temporarily holds the turns together to permit the conductor to be paid off from the center of the reel without disturbing adjacent turns. The grooves permit the wax to penetrate into the gaps between the helical insulated conductors.

3,783,181

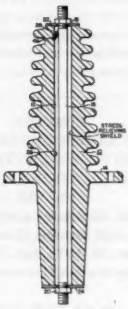
ELECTRICAL BUSHING HAVING A STRESS RELIEVING SHIELD AND METHOD OF CONSTRUCTING SAME

Paul W. Martincic, Sharpsville, and James F. Quirk, Penn Hills, both of Pa., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Oct. 30, 1972, Ser. No. 302,329

Int. Cl. H01b 17/26, 19/00

U.S. Cl. 174—142 7 Claims



An electrical bushing having a corona shield and methods of constructing such a bushing. The bushing contains an opening through an epoxy insulator. The opening is lined with a shield having a thin conducting layer, such as a layer of aluminum, disposed on a thin insulating layer, such as a film of highly polymeric polyethylene terephthalate. The shield is wrapped around a mold plug and then epoxy is disposed around the plug. After the epoxy has cured, the mold plug is withdrawn to leave the shield attached to the wall of the molded opening. In another method of constructing a shield, a coating of conductive material is sprayed onto a mold plug which is placed into a mold. The mold plug is removed after the epoxy injected into the mold has cured and the conductive material is left as a coating on the inside of the opening provided by the mold plug.

3,783,182

ELECTRICAL BUSHING ASSEMBLY HAVING A DIRECT CABLE TO CONDUCTOR ROD TERMINAL ASSEMBLY

William E. Horton, III, Bogart, Ga., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

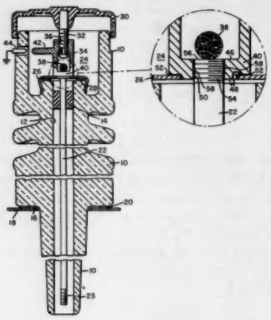
Filed Sept. 15, 1972, Ser. No. 289,403

Int. Cl. H01b 17/26

U.S. Cl. 174—145 1 Claim

Bushing apparatus including a terminal assembly suitable for use with large currents. The terminal assembly clamps an

electrical cable directly to the conductor rod of the bushing. The conductor rod extends through an opening in the terminal assembly with the end of the conductor rod positioned flush



with the inside of the terminal assembly. Current flowing from the cable to the conductor rod does not appreciably flow through the terminal assembly.

3,783,183

ARRANGEMENT FOR THE CONNECTING OF TRANSMISSION DEVICES TO A PROGRAM CONTROLLED ELECTRONIC DATA EXCHANGE SYSTEM

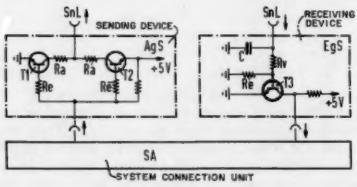
Fritz Giebler, Munich, Germany, assignor to Siemens Aktiengesellschaft, Berlin and Munich, Germany

Filed Apr. 20, 1971, Ser. No. 135,573

Claims priority, application Germany, Apr. 30, 1970, P 20 21 339.2

Int. Cl. H04l *15/00*

U.S. Cl. 178—3 **3 Claims**



A circuit arrangement is described for transmitting binary signals at high speeds between data signal transmission devices and system connections of a program controlled data exchange, even though the latter elements may be remotely located one from the other.

Interface lines interconnect the system connections and the transmission device for data traffic in either direction therebetween. Each interface line end is connected to one of a sending circuit or a receiving circuit. The sending circuit transmits either of two voltage levels corresponding to the logic levels and maintains a constant internal resistance, regardless of the voltage being transmitted. The receiving means has a threshold value intermediate of the two binary voltage levels. Conventional cable having multiple lines is used for the interface cable, and a portion of the lines therein are grounded at both ends to prevent inter-line disturbance.

3,783,184

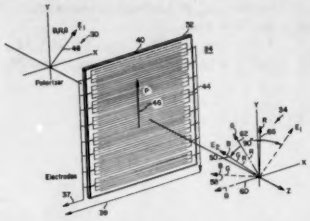
ELECTRONICALLY SWITCHED FIELD SEQUENTIAL COLOR TELEVISION

Michael N. Ernstoff, Mar Vista; Eric R. Fehr, Los Angeles; William C. Hoffman, and Richard N. Winner, both of Torrance, all of Calif., assignors to Hughes Aircraft Company, Culver City, Calif.

Filed Mar. 8, 1972, Ser. No. 232,890

Int. Cl. H04n *9/12*

U.S. Cl. 178—5.4 BD **3 Claims**



A high brightness, field sequential color television display system utilizing electronically controlled color switching of ferro-electric ceramic wafers. The stationary filter provides a color change electronically and color switching is the result of selected retardations of the signals for each of the basic red, green and blue colors so that a rapid field sequential operation is performed. The system employs two polaroid filters, the polarizer and the analyzer, with a ceramic material positioned intermediate thereto, to control the polarization of the light passing through it by the desired amounts and therefore provide the primary colors. Wavelength selection over a relatively narrow bandwidth is thus achieved by using a material with the property to obtain angles for transmission as a function of the wavelength. The color image is formed in the field sequential fashion by placing the spectral filter in front of a cathode ray tube and observing the various intensities of white light on the face of the tube through the composite filter.

3,783,185

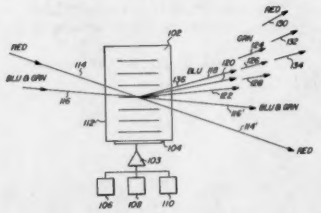
MULTI-COLOR ACOUSTOOPTIC MODULATOR

Richard A. Spaulding, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

Filed Jan. 28, 1972, Ser. No. 221,668

Int. Cl. H04n *1/46, 5/84*

U.S. Cl. 178—5.2 **28 Claims**



An apparatus and method are disclosed for acoustooptically modulating and diffracting a plurality of optical wavelengths contained in laser light impinging on an acoustooptic cell to form a composite output beam comprising intensity modulated component beams of selected wavelengths present in the impinging laser light. To accomplish this, a plurality of amplitude modulated electrical signals of different fixed frequencies are applied to an electrical-to-acoustical transducer operatively attached to the cell. Every frequency applied to

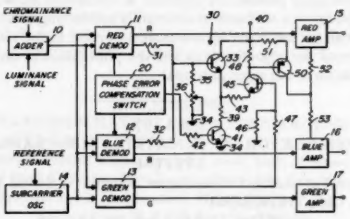
the transducer produces an acoustic wave within the cell to form a diffraction spectrum of the wavelengths present in the laser light impinging or incident on the cell. The acoustic wave producing electrical frequencies are chosen such that diffracted component beams of selected wavelengths are collinear. Thus, the collinear component beams form a composite output beam comprising the selected diffracted wavelengths. Non-collinear beams of the selected wavelengths as well as unwanted diffracted wavelengths and undiffracted beams are masked or blocked from further passage through the optical system. The amplitudes of the electrical signals producing the acoustic waves within the cell are modulated independently to control the intensities of the individual component beams of selected wavelengths present in the composite output beam. The laser light impinging on the cell can comprise a single multi-wavelength beam; two collinear beams of different wavelengths and a third noncollinear beam of another wavelength; or beams of different wavelengths can be mutually noncollinear, the angles of impingement being chosen in accordance with what electrical frequencies are applied to the transducer.

3,783,186

AUTOMATIC HUE CONTROL AND METHOD

William H. Slavik, and Brett A. Valiquet, both of Palos Hills, Ill., assignors to Motorola, Inc., Franklin Park, Ill.

Filed May 15, 1972, Ser. No. 253,375
Int. Cl. H04n *9/12*
U.S. Cl. 178—5.4 HE **12 Claims**



In a three-color television receiver utilizing red, blue and green demodulators, variable phase shifting networks (or permanently phase shifted networks) are connected to supply to the red and blue demodulators reference signals with predetermined phases relative to the synchronizing signal. A reference signal is provided or the red and blue components of the chrominance signal are combined to form a negative green component and the positive green component is compared thereto to provide a source of signal for reducing the output of the red and blue component amplifiers when the positive green component exceeds the reference signal.

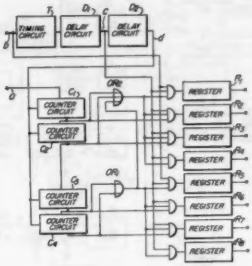
3,783,187

FACSIMILE TRANSMISSION SYSTEM

Takeo Kusama, and Takashi Hyodo, both of Yokohama, Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Continuation-in-part of Ser. No. 7,966, Feb. 2, 1970, abandoned. This application May 5, 1972, Ser. No. 250,723
Int. Cl. H04n *7/12*
U.S. Cl. 178—6 **16 Claims**

A facisimile transmission system wherein each of white or black run lengths of an original picture is coded into a binary form, whose bit number is required to represent the maximum run length of said original picture, and each of the codes constituted by said number of bits is divided into blocks, each thereof containing a predetermined number of bits, and a bit for discriminating whether the code represents a white or black run length is added to the block containing a first "1" bit starting from the highest order block and is also added to the succeeding block or blocks, thereby eliminating the block or blocks, which precede said block containing the first "1" bit



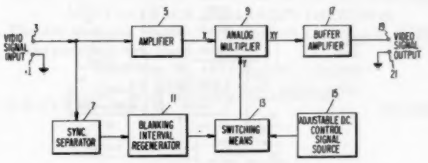
and contain only "0" bits to constitute only insignificant portions, so as to reduce the number of bits of the codes to be transmitted and to thereby compress a bandwidth of a facsimile signal. Typically, the number of bits of a run length is less than ten, but not necessarily.

3,783,188

FADE-TO-BLACK VIDEO SIGNAL PROCESSING APPARATUS

Winslow Leroy Hurford, Cape Coral, Fla., assignor to RCA Corporation, New York, N.Y.

Filed Apr. 17, 1972, Ser. No. 244,564
Int. Cl. H04n *5/22*
U.S. Cl. 178—6.8 **6 Claims**



Fade-to-black video signal processing apparatus, used to fade picture portions of a video signal provided from a source not synchronized to available studio sync, employs an analog multiplier as a fader element. Apparatus to regenerate horizontal and vertical blanking interval pulses, arranged for synchronization with the video signal, is used to place the analog multiplier into full gain condition during the horizontal and vertical blanking intervals of the video signal.

3,783,189

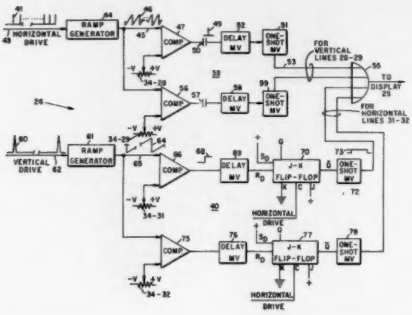
TELEVISION SYSTEM FOR PRECISELY MEASURING DISTANCES

Christopher M. Nelson, Livermore, Calif., assignor to The United States of America as represented by the United States Atomic Energy Commission, Washington, D.C.

Filed June 1, 1972, Ser. No. 258,643
Int. Cl. H04n *7/18*
U.S. Cl. 178—6.8 **9 Claims**

An alignment detection system for the long pipe, including a television camera mounted at one end of the pipe for viewing pre-indexed light sources mounted inside and along the length of the pipe, a television display for viewing images of the light sources, a line generator for developing a plurality of *x*–*y*

traces on the television display, each *x* and *y* trace being movable to pass through a light-source image and thereby locate the image with respect to a reference point to indicate the amount of lateral pipe misalignment.



Microscopic lengths may also be measured with the system by magnifying the image of the length before viewing with the television camera and using only *y* traces derived from a horizontal drive signal.

3,783,190

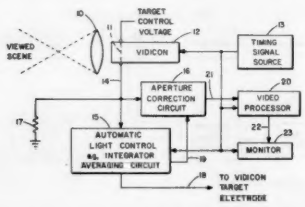
APERTURE CORRECTION CIRCUIT FOR LOW LIGHT LEVEL TELEVISION CAMERA

Rolf Gaebele, Redwood City, Calif., assignor to GTE Sylvania Incorporated, Mountain View, Calif.

Filed Apr. 8, 1971, Ser. No. 132,443

Int. Cl. H04n *5/14*

U.S. Cl. 178—7.2 **5 Claims**



An aperture correction circuit for a low light level television (LLLTV) camera comprises a transistor differential amplifier having a delay line connected between the transistor base electrodes and a voltage controlled variable resistor, such as a Raysistor, connected between the emitter electrodes of the transistors. The control voltage for the Raysistor is derived from the video signal amplitude or the target control voltage as a measure of the average value of the intensity of light from a viewed scene. The control signal may be obtained from a threshold circuit or from the automatic light control circuit.

3,783,191

OBJECTIVE LENS FOR TELEVISION CAMERAS

Noboru Sugimoto, Fujiidera, and Shoichi Ohneda, Wakayama, both of Japan, assignors to Minolta Camera Kabushiki Kaisha, Osaka-shi, Japan

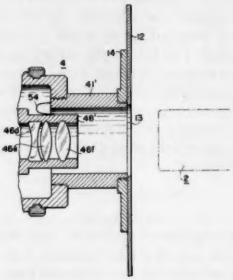
Filed Dec. 27, 1972, Ser. No. 318,945

Claims priority, application Japan, Dec. 28, 1971, 46/122661

Int. Cl. G02b *7/02*

U.S. Cl. 178—7.92 **12 Claims**

An objective lens for television cameras is provided wherein a bodytube supporting the objective lens and a shield case of the electrical system of the camera including the vidicon tube are maintained at the same potential when connected to each other for preventing disturbances on the received picture image caused by a potential discrepancy in the transmitting system. The objective lens has a mounting or coupling portion by way of which the lens is conductively mounted on the casing of the electric system of the television camera accommodating the vidicon tube. In order to improve conductivity in the connection between the mounting portion of the objective



lens and the closest portion to the television camera of a movable member which supports the lenses, conduction surfaces are provided on the mounting portion and the closest portion to the television camera of the movable member and an electrically conductive member is interposed between the two conduction surfaces in constantly contacting relationship therewith for maintaining the closest portion to the television camera of the objective lens and the photoelectric surface of the vidicon at the same potential.

3,783,192

DECODER FOR USE IN MATRIX FOUR-CHANNEL SYSTEM

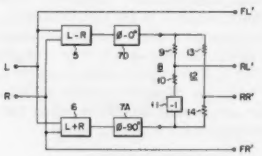
Susumu Takahashi, Tokyo, Japan, assignor to Sansui Electric Co., Ltd., Tokyo, Japan

Filed Dec. 21, 1972, Ser. No. 317,134

Claims priority, application Japan, Dec. 30, 1971, 47/3172; Nov. 30, 1972, 47/120033

Int. Cl. H04r *5/04*

U.S. Cl. 179—1 GQ **14 Claims**



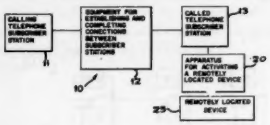
A decoder for use in an SQ matrix four-channel system comprises first and second matrix circuits for forming a difference signal and a sum signal of the first and second channel signals respectively. The output signals from the first and second matrix circuits are supplied to third and fourth matrix circuits to produce reproduced rear signals which are supplied to two rear loudspeakers disposed to the rear of a listener. Between the first and second matrix circuits and third and fourth matrix circuits is connected at least one phase shifter which gives a phase difference of about 90° between the output signals from the first and second matrix circuits. The first and second channel signals are supplied to respective ones of two front loudspeakers disposed in the front of the listener.

3,783,193

APPARATUS FOR ACTIVATING A REMOTELY LOCATED DEVICE IN RESPONSE TO THE RINGING OF A CALLED TELEPHONE SUBSCRIBER STATION

Martin Lee, Santa Clara, Calif., assignor to Pantek Corporation, San Mateo, Calif.

Filed Jan. 28, 1971, Ser. No. 110,520
Int. Cl. H04m *11/00*
U.S. Cl. 179—2 A 8 Claims



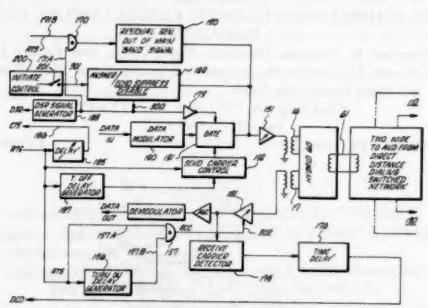
Apparatus for the activation of a remotely located device under the control of telephone subscriber lines and stations. The apparatus of the present invention is located in the vicinity of a called telephone subscriber station and is operated to activate a remotely located device through two series of ringing signals initiated by a calling telephone subscriber station and produced by the called telephone subcriber station. The first series of ringing signals activates a timer which resets a counter that controls the operation of the remotely located device providing the counter is not on a preselected code position. The timer disables the counter from receiving counting pulses during the first series of ringing signals. In addition thereto, the timer enables the counter to receive counting pulses during a period P_2. Should the second series of ringing signals be produced by the called subscriber station within the period P_2 and be a preselected number of ringing signals, the counter will then activate the remotely located device.

3,783,194

DATA MODEM HAVING A FAST TURN-AROUND TIME OVER DIRECT DISTANCE DIALED NETWORKS

Viesturs Valentins Vilips; Joseph Lowey, both of Miami Lakes, and Paul E. Payne, Fort Lauderdale, all of Fla., assignors to Milgo Electronic Corporation, Miami, Fla.

Filed Nov. 20, 1972, Ser. No. 308,286
Int. Cl. H04m *11/06*
U.S. Cl. 179—2 DP 18 Claims



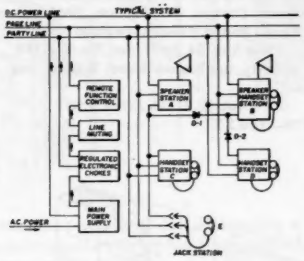
This invention relates to data communication over networks employing echo suppressors. The invention generates a tone to initially disable the echo suppressors, thereafter whenever the network is free of data a tone generator is enabled to supply a signal at a frequency outside the frequency range of data transmission to keep the echo suppressors disabled during the absence of data transfer in either direction thereby effecting a data transmission system with a reduced turn around time.

3,783,195

PLANT TELEPHONE COMMUNICATION SYSTEM

Paul B. Day, 1406 Holland Rd., Reading, Pa.

Filed Dec. 22, 1971, Ser. No. 210,758
Int. Cl. H04m *13/00*
U.S. Cl. 179—28 19 Claims



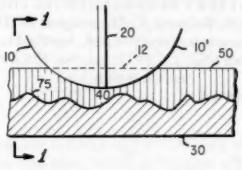
This invention relates to a voice communication system for intra or interplant use and which operates with a constant D.C. line voltage with relatively lower currents to enable the lines to be much longer with less power loss. The line impedance may be of the order of 3,300 ohms. The system includes a complete handset amplifier and selector switch within the handset handle. A resistor in series with one of the lines provides energizing voltage to a silicon controlled rectifier which is also energized by an A.C. source to energize a relay or other controlled device. The system is basically a voltage system as compared to a regular telephone which is basically a current system.

3,783,196

HIGH-DENSITY CAPACITIVE INFORMATION RECORDS AND PLAYBACK APPARATUS THEREFOR

Thomas Osborne Stanley, Princeton, N.J., assignor to RCA Corporation, New York, N.Y.

Filed Mar. 22, 1971, Ser. No. 126,678
Int. Cl. G11b *3/44*, *9/06*; H04n *5/76*
U.S. Cl. 179—100.1 B 20 Claims



A high-density information record comprises a stamped thermoplastic (e.g., vinyl) disc having a constant-width spiral surface groove, the center-to-center spacing of successive closely spaced convolutions of the groove spiral being substantially constant and independent of the recorded information. The recorded information appears as an information track constituting variations in the geometry of the groove bottom along its length. Playback apparatus employs a stylus having a tip conformed to be received in the disc groove in engagement with smoothly curved side walls of groove. As a disc-supporting turntable rotates, the stylus rides in the groove passing over successive dimension-varying information track elements in the groove bottom, which serve to vary the capacitance presented between a conductive electrode incorporated in the stylus tip and a reference conductor (e.g., a conductive surface of the disc-supporting turntable). The capacitance variations occurring during playback are trans-

lated into electrical signal variations by appropriate circuitry. Per illustrative embodiment, inexpensively replicated video disc of appreciable playing time is subject to playback by above-described techniques.

3,783,197
DATA ACQUISITION AND RECORDING SYSTEMS

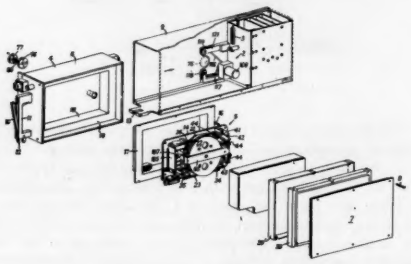
Frank Richard Towner, Wokingham, England, assignor to Sperry Rand Limited, London, England

Filed Aug. 24, 1971, Ser. No. 174,344

Claims priority, application Great Britain, Aug. 26, 1970, 41,019/70

Int. Cl. G11b *23/04, 15/18*

U.S. Cl. 179—100.2 Z **10 Claims**



A compact flight data acquisition and recording system is disclosed in which a recorder unit is detachable from the remainder of the system. The recorder unit comprises a casing in which is mounted a tape deck and drive means for the tape deck is mounted externally of the recorder unit and is disconnectible from the tape deck when the recorder is detached from the system.

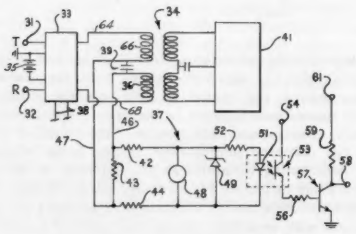
3,783,198
BATTERY REVERSAL DETECTION

Francis O. Couch, Belmont, Calif., assignor to GTE Automatic Electric Laboratories Incorporated, Northlake, Ill.

Filed Mar. 18, 1971, Ser. No. 125,674

Int. Cl. H04m *3/22*

U.S. Cl. 179—16 AA **4 Claims**



Electronic circuitry for detecting battery reversal in telephone control signaling while completely isolating signaling circuits with logic circuits and at the same time interfacing signaling circuits with logic circuits.

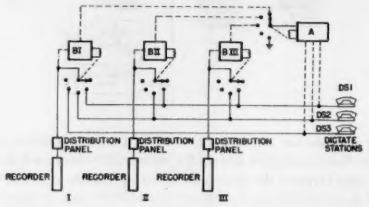
3,783,199
SWITCHING APPARATUS FOR SELECTIVELY INTERCONNECTING OILTATION MACHINES AND STATIONS

William M. Nye, Seattle, and Stanley W. Jones, Bellevue, both of Wash., assignors to Lanier Electronic Laboratory, Inc., Atlanta, Ga.

Division of Ser. No. 49,432, June 24, 1970, Pat. No. 3,705,961. This application Feb. 24, 1972, Ser. No. 229,083

Int. Cl. G11b *19/00;* **H04m** *11/10*

U.S. Cl. 179—100.1 DR **3 Claims**



A plurality of central dictation systems are selectively interconnected between a plurality of dictate stations by way of a recorder selector switch and dictate station selector switches. Rotary stepping switches may be used as the selector switches. An off-hook dictate station condition causes a dictate station selector switch of an available recorder to hunt for the off-hook dictate station. After the dictate station is located, the recorder selector switch then hunts for the next available recorder. Another feature is that every other pulse of a rectified standard 60-cycle per second current is utilized, with the pulses spaced by a time interval sufficient to allow the control circuits and mechanical movements in both the switching apparatus and recorder-transcriber to effectively seize an available recorder-transcriber prior to the next pulse. The dictate station energizes a stepping circuit when the headset is raised (off-hook condition) only after a predetermined delay to preclude the stepping circuit from responding to simultaneous off-hook signals from multiple dictate stations. Only a portion of the rectified 60-cycle voltage is utilized in the control circuits so tat the maximum voltage capability of the transistor components in the circuits is not exceeded.

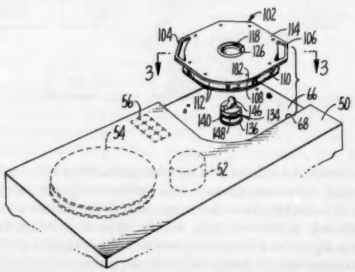
3,783,200
SELF-THREADING MAGNETIC TAPE TRANSPORT AND MAGAZINE

Johannes K. Jantzen, Mountain View, Calif., and Robert L. Moore, La Grange, Ill., assignors to International Video Corporation, Sunnyvale, Calif.

Filed Aug. 18, 1971, Ser. No. 172,649

Int. Cl. G11b *15/18*

U.S. Cl. 179—100.2 T **1 Claim**



A self-threading magnetic tape transport and dust-tight tape magazine for use therewith. When the magazine is in place on

the transport, a locking hub/turntable breaks the dust seal and permits the enclosed tape reel to rotate freely within the magazine. Upon giving the load command, an automatic threading procedure is initiated that opens an access door in the magazine, inserts a puck drive wheel to drive the stiff leader on the end of the tape past a stripper arm into a threading path. A spirally grooved sleeve threads the leader around the helical scan assembly. After passing the scanner, the puck is withdrawn and the leader is driven by the capstan. A set of guide arms directs the leader around the slowly rotating take up reel where it is cinched up by friction to complete the automatic threading. Tape cannot leave the magazine if the magazine is improperly installed by the operator due to the configuration of the magazine and transport top cover in conjunction with guide finders and interlocks.

3,783,201

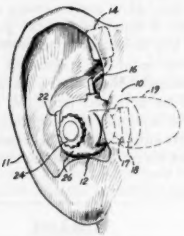
MINIATURE HEARING AID STRUCTURE

Erwin M. Weiss, Chicago, and Richard Brander, Cicero, both of Ill., assignors to Beltone Electronics Corporation, Chicago, Ill.

Filed Dec. 2, 1970, Ser. No. 94,273

Int. Cl. H04r *25/02*

U.S. Cl. 179—107 E **5 Claims**



A hearing aid structure is provided in which all of the components of the hearing aid may be fitted within a person's ear. The structure includes a main housing for a power source and an amplifier and a microphone housing isolated from the main housing and connected to it by a deformable, flexible, skeletal structure. A receiver is compliantly connected to the main housing and an ear seal is rigidly coupled to the receiver and adapted to fit snuggly into the ear canal of a person's ear.

3,783,202

SPEAKER SYSTEM AND ELECTROSTATIC SPEAKER

Lloyd J. Bobb, Glenside, Pa., assignor to Chester C. Pond, Doylestown, Pa.

Continuation of Ser. No. 724,805, April 4, 1968, abandoned. This application Jan. 7, 1971, Ser. No. 104,741

Int. Cl. H04r *19/02*

U.S. Cl. 179—111 R **15 Claims**

A speaker system incorporating an electrostatic speaker and a dynamic speaker in which a cross-over network is employed providing for operation of the dynamic speaker only up to the frequency at which it will function as a piston. Also, a flat push-pull electrostatic speaker incorporating a pair of planar single ended electrostatic speakers so constructed as to maintain omni-directional tensioning of their respective electrically conductive membranes and electrical contact therewith and to provide controlled spacing between each membrane and its associated conductive perforated backing

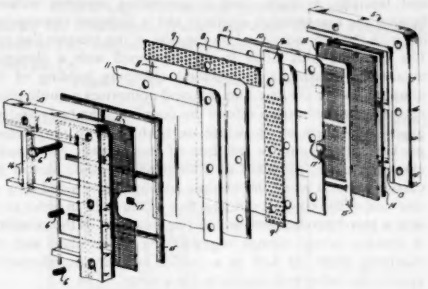


plate and constructed to provide acoustic coupling of the pair of speakers by means of a thin air film of controlled thickness at ambient pressure.

3,783,203

APPARATUS FOR THE FEED-IN AND FOR DISTRIBUTION OF AN ELECTRIC CURRENT

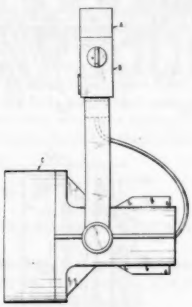
Heinz Seelbach, Kierspe, and Gerhard Eversberg, Ludenscheid, both of Germany, assignors to Firma Erco-Leuchten K. G., Reininghaus, Germany

Filed Feb. 11, 1972, Ser. No. 225,445

Claims priority, application Germany, Feb. 11, 1971, P 21 06 422.2

Int. Cl. B60m *1/34*

U.S. Cl. 191—23 **15 Claims**



An apparatus for feeding and distributing an electric current in electric line rails, which comprises a profiled carrier rail having a longitudinal, central receiving channel. Pole rails are disposed in superposed planes inside of the profiled carrier rail on both sides of the receiving channel. A zero conduit rail and a grounding rail are also provided. Both last mentioned rails are disposed in the receiving channel. A terminal box carries a lamp capable of being coupled at any selected point of the electric line rails. A terminal coupling connects at one point of the carrier rail at least one main to the rails on the side of the carrier rail, and an electric line rail comprises at least three pole rails, the zero conduit rail, and the grounding rail. The coupling includes a frame-shaped housing of insulating material which is longitudinally rectangular, and open in an upward direction and closed downwardly by a removable cover. A coupling plug body has its cross-section adjusted to the cross-section of the receiving channel and is integral at least one end side of the frame housing and step-like setoff and projecting relative to the latter. The coupling plug body has

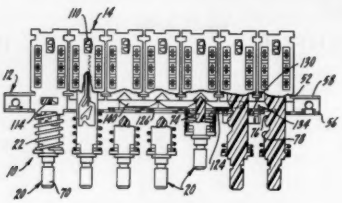
transmission contacts for the electric current corresponding with the contact rail arrangement in the electric line rail disposed in planes superposed, adjacent each other in pairs and laterally projects, and a grounding member extends beyond the transmission contacts and is disposed corresponding with the grounding rail on the side of the electric line rail. The coupling plug body is also equipped with a clamping means for causing a mechanical clamping holding of the coupling in the electric line rail, and comprises a guide plate, retained on the bottom side of the coupling plug body and engages over parts of the width on both sides in longitudinal pockets of the carrier rail free of the contact rails, and a clamping plate, provided in a longitudinal guide slot of the carrier rail in a plane therebelow, arranged one-sided only on one side of the conduit rail, and free of the rails, in order to insure a non-interchangeability during insertion of the coupling. A tension screw clamps together the guide plate and the clamping plate, as well as a carrier rail stay therebetween, against the latter and relative to each other.

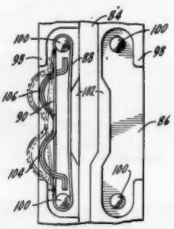
3,783,204

MULTIPLE CIRCUIT CONTROL PUSHBUTTON SWITCH ASSEMBLY WITH IMPROVED PUSHBUTTON ACTUATOR LATCH BAR MECHANISM AND MOVABLE CONTACTS

Maurice E. Kennedy; Bernard J. Golbeck, both of Crytsal Lake, and Raymond F. Lewandowski, Mt. Prospect, all of Ill., assignors to Oak Industries Inc., Crystal Lake, Ill.

Filed Sept. 11, 1972, Ser. No. 287,973
Int. Cl. H01h *9/26*
U.S. Cl. 200—5 EB **16 Claims**





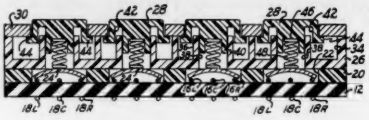
A pushbutton switch construction utilizes a shorting bar having integral but independently flexible arms. The shorting bar is positioned in the switch plunger and arranged to electrically connect at least two contact terminals within the switch housing. The cam follower which moves within a cam slot in the switch plunger also functions as a stop preventing accidental removal of the plunger. A plurality of such switches are fastened to a channel with blockout members being slidably arranged within the channel in front of the switch housings. There are cooperating portions on each blockout member and the adjacent plungers such that only one of such plungers may be moved inwardly to an operative position. A latch bar is positioned in the channel and arranged for sliding movement adjacent the blockout members. A latch bar spring is positioned on the front of the channel and has portions extending through the channel and into cooperative relationship with the latch bar.

3,783,205

KEYBOARD SWITCH MATRIX ASSEMBLY WITH IMPROVED GUIDE MEANS FOR REDUCING TRANSFER OF BOUNDING MOTION TO MOVABLE CONDUCTOR

Henry J. Boulanger, Cumberland, Providence County, R.I., assignor to Texas Instruments Incorporated, Dallas, Tex.

Filed Oct. 27, 1971, Ser. No. 192,995
Int. Cl. H01h *13/30*
U.S. Cl. 200—5 A **18 Claims**



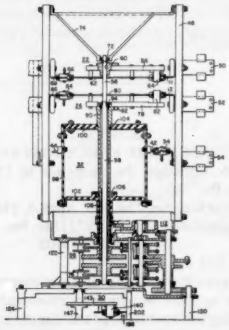
A system employing a keyboard comprises a base mounting an array of key bodies each adapted to reciprocably move to cause actuation of electrical circuits. A diaphragm is employed as an electrical conductor moving into and out of engagement with underlying contacts upon actuation and deactuation of the key body. Bounding problems have been minimized while maintaining tactile feedback by locating a spring member between the key and its respective diaphragm providing increased motion differential and by providing elongated guiding surfaces which eliminate skew movement of the key. Several forms of keys and key mountings are shown embodying the elongated guideway including an elongated hub molded in the bezel plate and receiving a close fitting rod portion of the key, a separate tubular guide and close fitting plunger, and a key having tabs extending laterally therefrom, the tabs slidably received in grooves formed in the base. Another embodiment particularly useful where two or more circuits are to be actuated from the same key employs a second spring to maintain the diaphragm away from the underlying contacts until the key is depressed thereby precluding undesirable back circuits without the use of blocking diodes or the like.

3,783,206

TAP CHANGING APPARATUS WITH IMPROVED CONTACT STRUCTURE TO ELIMINATE ELECTRICAL FIELDS ACROSS OPEN INTERRUPTER SWITCHES

Robert C. Lingenfelter, Sharon, Pa., assignor to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed July 6, 1972, Ser. No. 269,364
Int. Cl. H01h *21/20*
U.S. Cl. 200—11 TC **8 Claims**



Apparatus for providing load tap changes having means for protecting the current interrupting switches from winding surge voltages. Current interrupting switches are connected to stationary contacts of a load transfer switch. Movable contacts

of the load transfer switch rotate during a tap change to shunt the open and closed current interrupting switches and to eliminate the electrical fields across open current interrupting switches upon completion of the tap change.

3,783,207

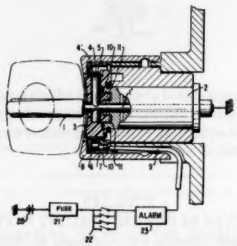
STEERING LOCK IN MOTOR VEHICLES

Gerhard Schiesterl, Stuttgart-Mohringen, and Josef Eibl, Ingolstadt/Donau, both of Germany, assignors to Daimler-Benz Aktiengesellschaft, Stuttgart-Unterturkheim, Germany

Division of Ser. No. 11,167, Feb. 13, 1970. This application June 6, 1972, Ser. No. 260,216

Int. Cl. H01h *27/00*

U.S. Cl. 200—44 **7 Claims**



A steering lock for a motor vehicle which includes a make-contact to actuate a warning installation when the ignition key is left inserted in the lock and a vehicle door is opened; the locking cylinder of the steering lock includes a mounting support made from insulating material which contains two opposite pins or spring-ring parts projecting into the path of the key but without contacting one another; the inner ends of the pins or spring-ring parts may be constructed ball-shaped, conical, or the like, and are in contact with their outer ends at a slip-ring that is connected with the warning installation.

3,783,208

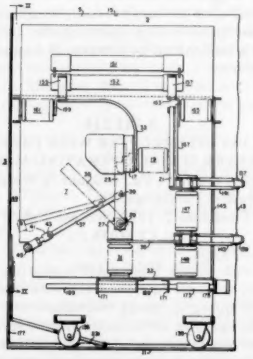
METAL-ENCLOSED SWITCHGEAR WITH INTERLOCK MEANS

Norman Davies, Trafford, and Robert E. Wobrak, Irwin, both of Pa., assignors to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed July 17, 1972, Ser. No. 272,702

Int. Cl. H01h *9/24, 33/50*

U.S. Cl. 200—50 AA **9 Claims**



Metal-enclosed switchgear comprising improved safety interlock means for preventing withdrawal or insertion of a circuit interrupter, or charging of the overcenter spring means, under certain conditions.

3,783,209

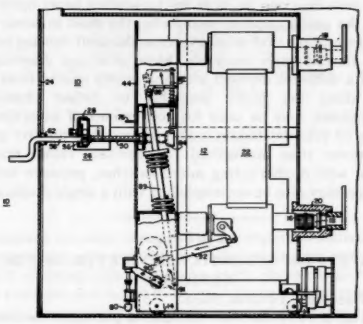
MECHANISM FOR HOLDING AND LEVERING LARGE DRAW OUT TYPE CIRCUIT BREAKERS

Charles M. Cleaveland, Irwin, and Fred Bould, Pittsburgh, both of Pa., assignors to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed Oct. 31, 1972, Ser. No. 302,623

Int. Cl. H01h *33/50*

U.S. Cl. 200—50 AA **8 Claims**



A levering and holding device is provided for positioning large circuit breakers in a switchgear compartment or cell. The levering and holding device comprises a box beam which can be secured to the cell walls and a rotatable threaded shaft which is connected to the beam. A threaded shaft has a nut threaded thereon and has one end fixed to the beam. The thread shaft may be rotated with a crank. The breaker is attached to the nut, and as the shaft is rotated, the nut is moved along the shaft and moves the breaker into position. Interlocks are provided to prevent the breaker from being levered into the cell when the beam is not engaged in the cell wall and to prevent the beam from being disengaged from the cell wall unless the breaker is in a fully disengaged position. Another interlock is provided so that when the breaker is closed and in the operating position the threaded shaft cannot be rotated to lever out the breaker.

3,783,210

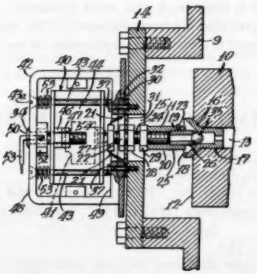
SHAFT POSITION AND WEAR INDICATOR SWITCH DEVICE

Robert E. Spooner, 6212 W. Catalpa Ave., Chicago, Ill.

Filed July 28, 1972, Ser. No. 276,126

Int. Cl. H01h *3/16*

U.S. Cl. 200—61.4 **19 Claims**



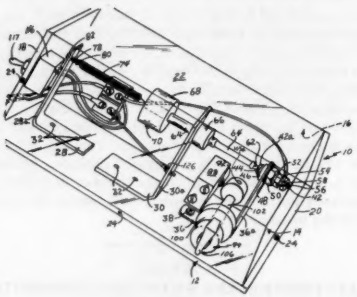
A shaft wear indicator for both axial and radial displacement of a shaft is disclosed. One end of an elongated probe assembly is maintained against the center of rotation of an ex-

posed end of the shaft rotatably supported upon bearings in a housing. The probe end facing the shaft is concave, and a ball bearing is captured between this concavity and the shaft end. The probe is resiliently supported at the shaft end in alignment with the shaft axis by being passed centrally through a diaphragm spaced from the end of the shaft and fixed therein, with the diaphragm held about its periphery by a rigid annular plate secured to the housing. The probe is biased toward the shaft by either a spring or by means of the vacuum created over the side of the diaphragm facing the shaft end. A sensing device including one or more microswitches bears upon the end of the probe opposite that facing the shaft to sense displacements of the shaft with respect to the shaft housing transmitted via the probe assembly. More than one diaphragm, each of a different exposed area and axially spaced from the other along the probe assembly to define chambers therebetween, may be used for convenience if detection of bearing oil pressure failure is also desired. If a positive pressure greater than atmospheric is provided, rather than a vacuum with double-acting micro-switches, pressure failure detection may also be accomplished with a single diaphragm.

3,783,211
SAFETY IMPACT SWITCH DEVICE FOR MOTOR VEHICLES

Pietro Panettieri, Taunton, Mass.

Filed Aug. 5, 1971, Ser. No. 169,408The portion of the term of this patent subsequent to Feb. 22, 1989, has been disclaimed.
Int. Cl. H01h *35/14*
U.S. Cl. 200—61.50 **6 Claims**



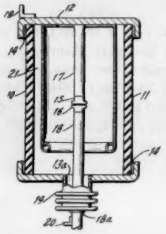
A safety impact switch device is normally connected to the ignition system of a motor vehicle and is automatically disconnected by force of an impact resulting from a vehicle collision the disconnection being effected by movement of a comparatively heavy article connected to a contact member. The switch device is combined with reset apparatus, and one side of a housing provides the basic support for the mounting members that support the actuating mechanism of my device.

3,783,212
CONTACTS FOR USE IN VACUUM SWITCH ARRANGEMENTS

Arthur C. Bates, Greensburg, Pa., assignor to I-T-E Imperial Corporation, Philadelphia, Pa.

Continuation of Ser. No. 750,503, Aug. 6, 1968, abandoned. This application July 28, 1971, Ser. No. 167,024
Int. Cl. H01h *9/30, 33/00*
U.S. Cl. 200—144 **5 Claims**

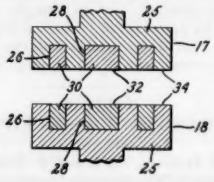
This invention discloses vacuum interrupter contacts and methods for manufacturing same. The contact compositions and the methods for producing same yield a contact structure which is capable of sustaining an arc at relatively low current conditions so as to prevent the occurrence of the "current chipping" effect. One contact composition which is comprised of spiral wound conductive and vapor cloud forming materials further performs the function of generating an electromagnetic field having a radial component which causes the ends of the arc to move over the contact surfaces to prevent burning of the contact surfaces due to an arc whose ends may remain stationary so long as the arc persists.



3,783,213
VACUUM TYPE ELECTRIC CIRCUIT INTERRUPTER

Victor W. Amoth, Media, Pa.; Graham R. Mitchell, Willingboro, N.J., and Carl C. Popadick, West Chester, Pa., assignors to General Electric Company, Philadelphia, Pa.

Filed Apr. 27, 1972, Ser. No. 247,995
Int. Cl. H01h *33/66*
U.S. Cl. 200—144 B **6 Claims**



A vacuum-type circuit interrupter comprises separable contacts, each comprising a body of iron having one or more recesses therein and a material within the recesses consisting essentially of copper and bismuth, the bismuth being present in an amount of a few percent or less by weight of the material. When the interrupter is first operated, the arcing surface of each contact is constituted by portions of copper-bismuth and by portions of iron.

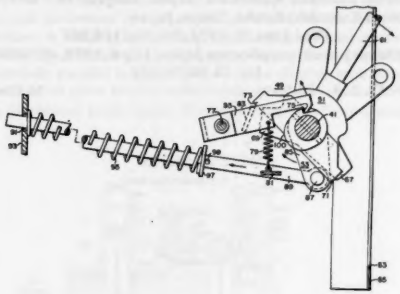
3,783,214
CIRCUIT INTERRUPTER WITH IMPROVED OVERCENTER SPRING OPERATING MECHANISM

Norman Davies, Trafford, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed June 7, 1972, Ser. No. 260,637
Int. Cl. H01h *3/30*
U.S. Cl. 200—153 SC **5 Claims**

An improved circuit interrupter comprises an operating shaft pivotally movable to move a movable contact structure, an overcenter spring operating mechanism movable by means of a manually operable drive means from a spring discharged position to an overcenter spring charged position, latch means in a latching position for latching the operating shaft until the overcenter spring operating mechanism reaches the overcenter spring charged position and means automatically unlatching the latch means when the overcenter spring operating mechanism reaches the overcenter spring charged position to

permit the overcenter spring operating mechanism to drive the movable contact structure to the closed position independent of the manually operable drive means. The latch means



may also be a double latch for performing the same latching function during an opening operation. The latch means prevents slow closing and opening operations of the circuit interrupter.

3,783,215

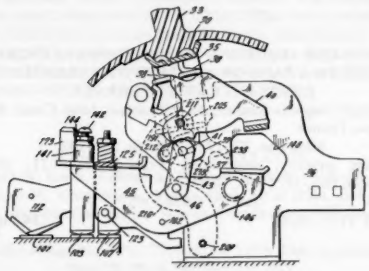
POSITIVE ON POSITION INDICATOR

John C. Brumfield, Drexel Hill, Pa., assignor to I-T-E Imperial Corporation, Philadelphia, Pa.

Filed July 27, 1972, Ser. No. 275,622

Int. Cl. H01h *3/46*

U.S. Cl. 200—153 G **9 Claims**



A molded case circuit breaker having spring powered overcenter toggle contact operating mechanisms is provided with means to prevent the operating handle from moving to its off position unless the contacts are open. This means may engage the toggle near the knee thereof to assist in driving the toggle over center during opening movement of the handle.

3,783,216

SAFETY SWITCH MECHANISM

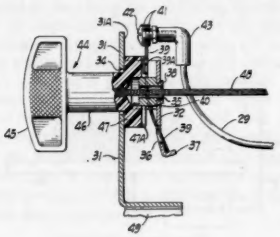
Gerhard R. Plamper, Parma, and Juergen Kaesgen, Brunswick, both of Ohio, assignors to MTD Products Inc., Cleveland, Ohio

Filed Nov. 6, 1972, Ser. No. 304,072

Int. Cl. H01h *17/08*

U.S. Cl. 200—161 **4 Claims**

A safety switch mechanism for use in connection with a recoil starter using a rope or cable. Such a starter is used on the usual internal combustion engine mounted on a vehicle such as a tractor which carries with it a powered tool such as a grass cutting unit. The mechanism is particularly adapted for safety systems wherein the engine is short-circuited so that the engine can not be started by pulling the rope or cable unless both the clutch of the tractor and the clutch of the powered tool are disengaged. This safety switch mechanism has a unique construction enabling it to be locked in open position so that the switch mechanism is not inadvertently opened by



vibration or other means after the engine is started and the tractor and powered tool are being used. This is an abstract only of the specific illustration of the invention given by way of example, and is not to be used in the interpretation of the claims nor as a limitation on the scope of the invention.

3,783,217

HIGH FREQUENCY PRESS WITH CAPACITIVE TUNING

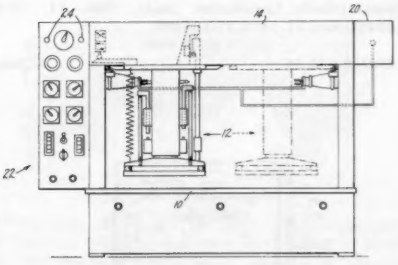
Terence J. Brown, Wigston, England, assignor to USM Corporation, Boston, Mass.

Filed Feb. 14, 1972, Ser. No. 226,118

Claims priority, application Great Britain, Feb. 19, 1971, 4,994/71

Int. Cl. B23k *13/02*; **H05b** *9/04*

U.S. Cl. 219—10.53 **3 Claims**



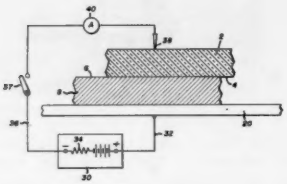
A press for applying high frequency welding and cutting energy to a workpiece placed between platens of the press, at either of two work stations at each of which the platens apply pressure and high frequency energy to the workpiece, has control means for independently tuning a generator of the high frequency energy to selected conditions at each work station. A parallel plate capacitor associated with the generator for the high frequency energy has a capacitance adjustable by changing the spacing between the parallel plates to tune the generator. The plates are urged toward each other by a spring and separated from each other by tension in a cable secured to the spring-movable plate. Means for controlling the cable include a camming member and adjustable stop means for shifting the cable in response to the work station locations of the platen to independently adjust the capacitance at each work station.

3,783,218

ELECTROSTATIC BONDING PROCESS

Norbert Adams, Syracuse, and Edward A. Baum, Liverpool, both of N.Y., assignors to General Electric Company, Syracuse, N.Y.

Filed Jan. 12, 1972, Ser. No. 217,117
Int. Cl. B23k *13/02*
U.S. Cl. 219—10.53 8 Claims



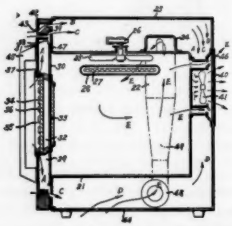
A process is disclosed for uniting a plurality of one or more vitreous members with one or more metallic members. The metallic members can be bodies of semiconductor material of either the monatomic or compound type. Such bodies are united in accordance with the invention by the process involving the application of heat and the simultaneous application of a magnetic field having flux lines extending in the plane of the surfaces to be united, and an electrostatic field.

3,783,219

AIR COOLED MICROWAVE COOKING OVEN AND DOOR

Koichi Tateda, Osaka, Japan, assignor to Sharp Kabushiki Kaisha, Osaka, Japan

Filed Nov. 8, 1971, Ser. No. 196,591
Claims priority, application Japan, Nov. 11, 1970, 45/100487; Nov. 11, 1970, 45/100489
Int. Cl. H05b *9/06*
U.S. Cl. 219—10.55 4 Claims



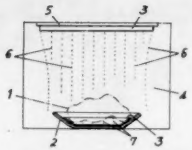
In a microwave cooking apparatus, more particularly in an apparatus having a radiant heating means for surface browning of the foodstuff and the like, the interior of the door and the handle are heated at a relatively high temperature. A blower means for providing an air stream is so installed as to cool the interior of the door whereby prevents the temperature rise of the door and the handle due to the heat from the browning means and so forth.

3,783,220

METHOD AND APPARATUS FOR BROWNING EXTERIOR SURFACES OF FOODSTUFF IN AN ELECTRONIC RANGE

Hiroshi Tanizaki, Kamakura, Japan, assignor to Yamamizu Shoji Kabushiki Kaisha, Tokyo, Japan

Filed June 30, 1971, Ser. No. 158,287
Claims priority, application Japan, July 6, 1970, 45/58847
Int. Cl. H05b *9/06*
U.S. Cl. 219—10.55 10 Claims



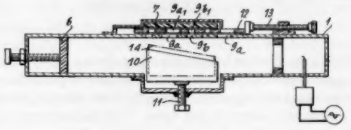
Browning the outer external surface of a foodstuff with infrared rays emitted from an infrared source at the same time the interior of the foodstuff is processed in an electronic range. The foodstuff and the source for emitting the infrared rays are placed in a region where electromagnetic waves are radiated from a high frequency generator. The infrared source is constructed by evaporating a conductive thin film on the outer surface of a dish or other vessel for holding the foodstuff. Alternately, crystallized glass having fine pieces of carbon fibres scattered throughout may form the infrared source. In yet another embodiment, a layer of silicon carbide may be formed on an insulating base plate. In each of the embodiments, the infrared heat is generated by the action of the electromagnetic waves on the specially constructed source.

3,783,221

DEVICE FOR ADJUSTING THE MICROWAVE ENERGY APPLIED TO A BAND OR A SHEET TO BE TREATED IN A RESONANT CAVITY FURNACE

Joel Henri Auguste Soulier, 66, Chaussee, Jules Cesar, Eaubonne, France

Filed Dec. 22, 1971, Ser. No. 210,742
Claims priority, application France, Dec. 31, 1970, 70.47568; Dec. 31, 1970, 70.47569
Int. Cl. H05b *9/06*
U.S. Cl. 219—10.55 34 Claims



A wave-guide has a slot whose area increases in the direction of reduction of the energy transmitted by a microwave generator.

3,783,222

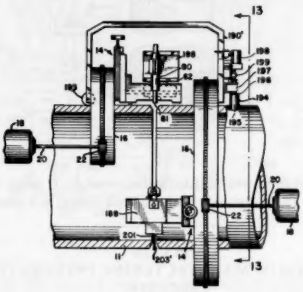
WELDING TORCH OSCILLATOR AND POSITIONER

Richard B. Gwin, Arlington; William L. Ballis, Hilliard; Claude W. Churchheus, Laurelville, and Bruce L. Hutt, Valley View, all of Ohio, assignors to Columbia Gas System Service Corporation, Wilmington, Del.

Division of Ser. No. 189,175, Oct. 14, 1971. This application May 16, 1972, Ser. No. 253,866
Int. Cl. B23k *9/02*
U.S. Cl. 219—60 A 2 Claims

A welding head clamping and oscillating assembly is disclosed for use in a welding machine having means for support-

ing and moving the assembly along a joint to be welded. The assembly includes a support platform connected to the assembly supporting means of the welding machine and a support plate slidably mounted on the support platform for reciprocal movement in a direction transverse to the joint to be welded. A welding head clamp is pivotally mounted on the support plate for arcuate oscillating movement in a direction substantially parallel to the direction of the slidable mounting of the support plate and a reversible stepping motor is operatively connected to the clamp for oscillating the clamp about



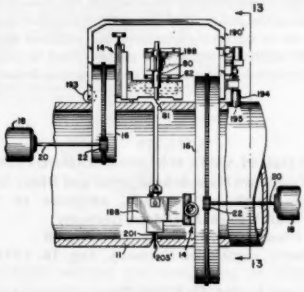
its pivot axis. An electrical control circuit is also provided for the stepping motor and includes logic circuitry for producing a pulse signal at a predetermined frequency and a binary counting circuit for counting a predetermined number of pulses from the signal and producing an output signal when the predetermined number of pulses is counted. The circuit includes means responsive to the output signal and operatively connected to the motor to drive the motor alternately in first and second directions in response to successive output signals from the binary counter thereby to oscillate the welding head clamp assembly about its pivot axis.

3,783,223

WELDING TORCH OSCILLATOR

Richard B. Gwin, Arlington; William L. Ballis, Hillard, and Claude W. Churchheus, Valley View, all of Ohio, assignors to Columbia Gas System Service Corporation, Wilmington, Del.

Division of Ser. No. 189,175, Oct. 14, 1971. This application May 16, 1972, Ser. No. 253,867
Int. Cl. B23k 9/02
U.S. Cl. 219—60 A **9 Claims**



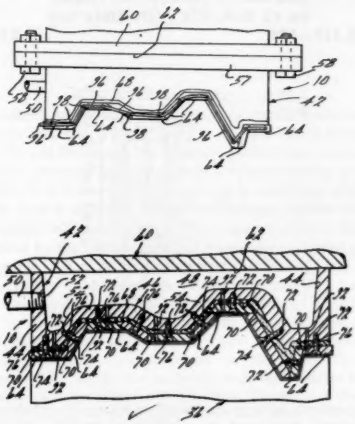
A welding head clamping and oscillation assembly is disclosed for use in a welding machine having means for supporting and moving the assembly along a joint to be welded. The assembly includes a support platform connected to the assembly supporting means of the welding machine and a support plate slidably mounted on the support platform for reciprocal movement in a direction transverse to the joint to be welded. A welding head clamp is pivotally mounted on the support plate for arcuate oscillating movement in a direction substantially parallel to the direction of the slidable mounting of the support plate and a reversible stepping motor is operatively connected to the clamp for oscillating the clamp about its pivot axis. An electrical control circuit is also provided for the stepping motor and includes logic circuitry for producing a pulse signal at a predetermined frequency and a binary counting circuit for counting a predetermined number of pulses from the signal and producing an output signal when the predetermined number of pulses is counted. The circuit includes means responsive to the output signal and operatively connected to the motor to drive the motor alternately in first and second directions in response to successive output signals from the binary counter thereby to oscillate the welding head clamp assembly about its pivot axis.

3,783,224

EDM ELECTRODE CONSTRUCTION AND METHOD OF MAKING SAME

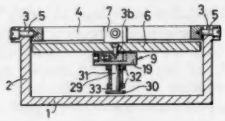
Lloyd A. Schroeder, Southfield, Mich., assignor to Automotive Pattern Co., Detroit, Mich.

Division of Ser. No. 822,892, May 8, 1969, Pat. No. 3,584,179. This application Mar. 29, 1971, Ser. No. 128,739
Int. Cl. B23p 1/08
U.S. Cl. 219—69 E **20 Claims**



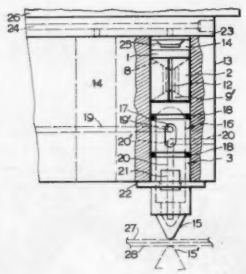
An electrode construction for use in operative association with electrical discharge machines, and method of making same, the electrode comprising a plurality of adjacently oriented cooperable segmental electrode sections arranged so as to define a working surface having a conformation corresponding to the shape to which a workpiece is to be machined; a support structure or holder member adapted to operatively support the electrode sections in a manner such that said sections may be removed and replaced after they have become excessively eroded or otherwise consumed; the method of making the electrode including the steps of providing a mold or form having a face portion of the same conformation as the ultimate shape to which the workpiece is to be machined; providing a parting or release substance on the face portion of the form and thereafter arranging the plurality of electrode sections on the form; providing a deformable material on one side of the holder member and biasing said member toward and into engagement with the electrode sections in a manner such that the material is deformed so as to define a reference surface upon which the electrode sections may be detachably mounted.

3,783,225
PRODUCTION OF CONICAL BORES
Werner Filsinger, Baumelsgewann 3, Heidelberg, Germany
Filed Aug. 25, 1972, Ser. No. 283,713
Int. Cl. B23p 1/12
U.S. Cl. 219—69 V 9 Claims



Method for producing a conical bore in a work-piece, in which the work-piece is suspended on gimbals and is wobbled during the boring process. Advantageously the production of the bore is by spark erosion. The invention also extends to a work-piece support in which a clamping table is suspended on gimbals for rotation about at least two axes. An eccentric device is used to move the clamping table.

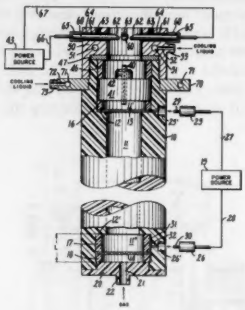
3,783,226
MULTIPLE WELDING ELECTRODE
Donald J. Beneteau, 1293 Front St., Amherstburg, Ontario, Canada
Filed Dec. 15, 1972, Ser. No. 315,685
Int. Cl. B23k 9/24, 11/30; H01r 7/06
U.S. Cl. 219—120 2 Claims



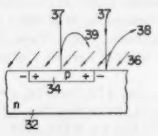
In resistance multiple spot welding where several electrodes are slidably contained in a single electrically conductive block, an electrode which is divided into three sections, i.e., an upper plug, a middle expending socket, and a lower electrode section. These sections are not connected but slide upon each other on conical surfaces in order to provide expansion to the central socket, in order to cause jamming between the electrode and the block thereby insuring good contact for the passage of an electric current.

3,783,227
FULLY ENERGIZED PLASMA JET
Michael D. Aitken, 1 Beekman Pl., New York, N.Y.
Filed Apr. 15, 1971, Ser. No. 134,315
Int. Cl. B23k 9/00
U.S. Cl. 219—121 P 24 Claims

Apparatus and method for generating a more efficient, fully energized plasma are disclosed. The gas is introduced into an enclosed channel where it is subjected to an electromagnetic field. The field is adjusted to energize the gas close to its ionization potential. The energized gas is then passed through a nozzle and into and through a high voltage electrical arc where it is converted to a plasma. In another embodiment, the gas passing through the nozzle is first subjected to a high voltage electrical field where it is further energized prior to being subjected to an electric arc and thus converted to a plasma.



3,783,228
METHOD OF MANUFACTURING INTEGRATED CIRCUITS
Yasuo Tarui; Seiichi Denda; Harutsune Baba, all of Tokyo, and Yasuo Komimiya, Yokohama, all of Japan, assignors to Agency of Industrial Science and Technology, Minister of International Trade and Industry, Tokyo, Japan
Continuation-in-part of Ser. No. 712,797, March 13, 1968, abandoned. This application Dec. 28, 1970, Ser. No. 102,026
Claims priority, application Japan, Apr. 13, 1967, 42-23128; Apr. 13, 1967, 42-23129; Apr. 13, 1967, 42-23130; Apr. 19, 1967, 42-24564; May 10, 1967, 42-29124; June 13, 1967, 42-37339; June 16, 1967, 42-38144; Aug. 4, 1967, 42-49789
Int. Cl. B23k 15/00
U.S. Cl. 219—121 EM 4 Claims

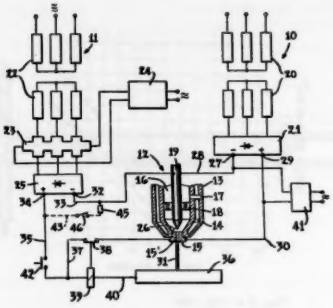


In the manufacture of a pattern of an integrated circuit, a reference mark is detected by an electron beam scan to correctly determine the position of the pattern on each semiconductor chip, or to correctly combine the patterns of circuit elements. The reference mark may also be used to locate defects of the semiconductor material so as to avoid defective regions.

3,783,229
DEVICE FOR PLASMA WELDING AND CUTTING
Josef Rohe, Frankfurt/Main-Schwanheim, and Dieter Staacks, Sprendlingen, both of Germany, assignors to Messer Griesheim GmbH, Frankfurt/Main, Germany
Filed Aug. 2, 1972, Ser. No. 277,250
Claims priority, application Germany, Aug. 16, 1971, P 21 40 968.7
Int. Cl. B23k 9/06
U.S. Cl. 219—121 P 5 Claims

A device for plasma welding and cutting by means of a plasma torch or burner. A first current source is provided for feeding a pilot arc discharge. The negative pole of the current source is connected to the electrode of the burner while the

positive pole is connected to the nozzle of the burner. A second current source feeds the main plasma arc discharge and its negative pole is connected to the burner electrode and the positive pole to the work piece. Specifically, the current



branch of the second current source which connects to the work piece is bypassed by a bypass branch in such a manner that when the plasma main arc discharge current is closed the resulting peak current is diverted through this bypass branch.

3,783,230

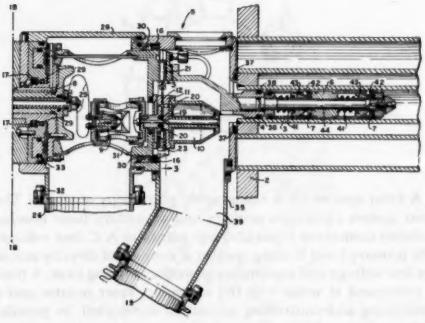
GUN FOR WELDING TUBES ON A TUBE PLATE

Jean-Pierre Peyrot, 1 place de la Division du General Leclerc, Val de Marne, France

Continuation-in-part of Ser. No. 64,506, Aug. 17, 1970, abandoned. This application Aug. 10, 1972, Ser. No. 279,693

Int. Cl. B23k *15/00*

U.S. Cl. 219—121 EB **6 Claims**



A rotatable welding gun comprising an electron gun, a secondary vacuum chamber around the said gun and a primary vacuum chamber at the level of the joint to be welded, a centering mandrel, a sealing plug at the free extremity of said mandrel and an annular sealing joint on the periphery of said primary vacuum chamber, in order to weld automatically the tubes of a heat exchanger on the bottom plates.

3,783,231

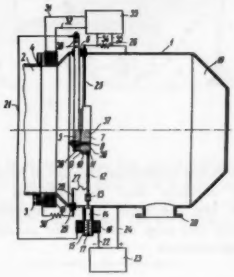
APPARATUS FOR VACUUM-EVAPORATION OF METALS UNDER THE ACTION OF AN ELECTRIC ARC

Leonid Pavlovich Sablev, ulitsa Entuziastov, 3, kv. 51; Jury Ivanovich Dolotov, bulvar Mira, 2, kv. 50; Leonid Ivanovich Getman, prospekt Kurchatova, 27, kv. 23; Valentin Nikolaevich Gorbunov, ulitsa Vesnina, 7, kv. 19; Evgeny Georgievich Goldiner, prospekt Kurchatova, 5, kv. 31, all of Kharkov; Karl Teodorovich Kirshfeld, ulitsa Lokomotives, 86, kv. 45, Riga, and Vladislav Vasilievich Usov, prospekt Kurchatova, 27, kv. 34, Kharkov, all of U.S.S.R.

Filed Mar. 22, 1972, Ser. No. 237,083

Int. Cl. B23k *9/08*

U.S. Cl. 219—123 **2 Claims**



A method for vacuum-evaporation of metals under the action of an electric arc and using a magnetic field is characterized by the fact that for retaining a cathode spot of an electric arc, a constant magnetic field is substituted by a pulsed magnetic field whose intensity reaches a maximum when the cathode spot is shifted to a non-evaporable cathode surface. This enables the travel of the cathode spot of electric arc to be unaffected by the inhomogeneity of the magnetic field and by any possible lack of perpendicularity of its lines of force to the surface being evaporated. A device for carrying out the method employs a sensor to take up the effect of electric arc, which is so arranged as to straddle the non-evaporable cathode surface and takes up the effect of electric arc only when the cathode spot is found on the non-evaporable cathode surface; the device is simple in design, smaller in size, and features a simplified-construction of an electromagnet that needs less power to be operated as compared to the prior-art devices used for vacuum-evaporation of metals under the effect of an electric arc.

3,783,232

APPARATUS FOR THE MANUFACTURE OF HOLLOW ROD ELEMENTS

Max Mengeringhausen, Wurzburg; Hermann Quenzel, Lengfeld; Reinhold Gehrig, Retzstadt, and Willi Spanheimer, Waldbuttelbrunn, all of Germany, assignors to Mero AG, Zug, Switzerland

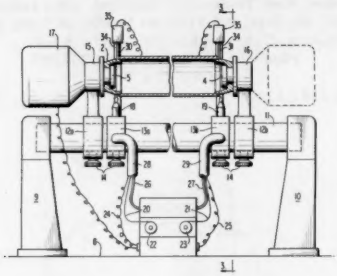
Continuation-in-part of Ser. No. 234,881, March 15, 1972, abandoned. This application Aug. 9, 1972, Ser. No. 279,051

Int. Cl. B23k *9/12*

U.S. Cl. 219—124 **6 Claims**

Apparatus for manufacturing hollow rod elements with a pair of end sections connected thereto, including guide bar

means having two pairs of adjustable supports individually slidable thereon, the outermost supports carrying rotatable holding and clamping devices supporting the end sections above the guide bar means, with at least one of the outer supports having a motor connected thereto to rotate the clamping and holding devices and hollow rod element held therebetween, and the inner pair of supports carrying arc welding devices and stop members for axially centering the tube on the end sections.



3,783,233

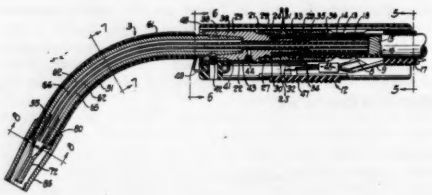
WELDING GUN COOLING STRUCTURE AND ELECTRODE TIP RETAINER

Guido A. dal Molin, Westlake, Ohio, assignor to Co-Ordinated Industries, Inc., Aliquippa, Pa.

Division of Ser. No. 10,389, Feb. 11, 1970, Pat. No. 3,610,875, which is a continuation-in-part of Ser. No. 672,794, Oct. 4, 1967, Pat. No. 3,544,758. This application July 14, 1971, Ser. No. 162,678

Int. Cl. B23k *9/00*

U.S. Cl. 219—130 **7 Claims**



A welding gun and cable apparatus utilizing quick connect and disconnect couplings to provide electrical current and shielding gas to a welding gun as well as a welding electrode if desired. The welding gun includes an elongate body having a gas passage and a passage formed between the body and an outer covering through which air flows by connection to cool the body. Additionally the gas passage may also contain a liner with radially sprung fingers at one end to outwardly bias against a welding tip to retain the welding tip in a nozzle portion.

3,783,234

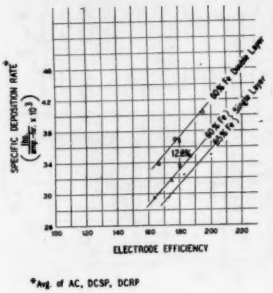
ARC WELDING COATED ELECTRODE

Robert J. Russell, Yorktown Heights, N.Y., assignor to Union Carbide Corporation, New York, N.Y.

Filed Mar. 31, 1972, Ser. No. 240,150

Int. Cl. B23k *35/22*

U.S. Cl. 219—146 **8 Claims**



*Avg. of AC, DCSP, DCRP

A multi-coated stick electrode having an inner layer surrounding a metal core wire and containing a majority of the arc stabilizers in said electrode. The outer layers contain a majority of the metal powder.

3,783,235

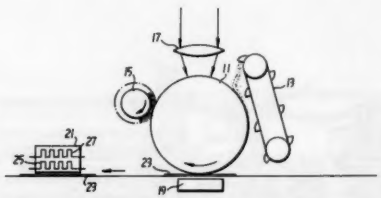
FUSER LOW VOLTAGE SENSOR FOR PHOTOCOPY MACHINE

Roland E. Sprague, Lansdale, Pa., assignor to Sperry Rand Corporation, New York, N.Y.

Filed Oct. 31, 1972, Ser. No. 302,588

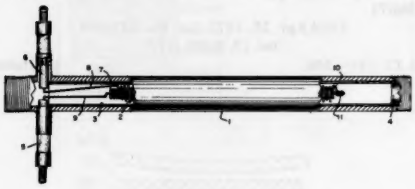
Int. Cl. H05b *1/00*; **G03g** *15/20*

U.S. Cl. 219—216 **5 Claims**



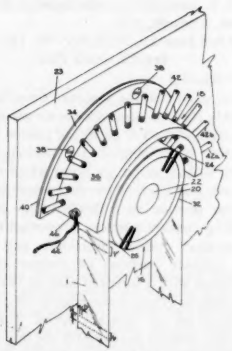
A fuser system for a xerographic photocopy machine. The fuser system comprises primary and secondary fuser heating resistors connected in parallel legs across an A.C. line voltage. The primary fuser heating resistor is connected directly across the line voltage and continuously produces fusing heat. A triac is connected in series with the secondary fuser resistor and a monitoring-and-controlling circuit is connected in parallel with the first and second parallel legs, across the line voltage, for monitoring the line voltage and controlling the triac so as to cause electrical current flow through the secondary fuser heating resistor when the line voltage drops below a predetermined value. The monitoring-and-controlling circuit comprises a lamp and a photoconductor, each being connected in parallel across the line voltage. Light from the lamp controls the voltage across the photoconductor and the voltage across the photoconductor is used to control current flow through the triac.

3,783,236
ELECTRICALLY OPERATED STEAM HEATER
Ronald E. Edin, Straham, N.H., assignor to GTE Sylvania Incorporated, Danvers, Mass.
Filed Mar. 2, 1973, Ser. No. 337,594
Int. Cl. H05b 3/02
U.S. Cl. 219—381 3 Claims



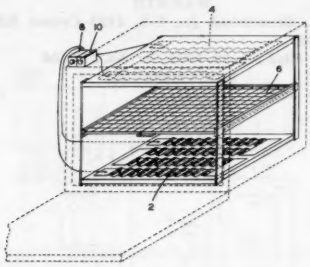
An electrical heater for heating steam to a superheated temperature has a longitudinal heating element disposed within a glass or ceramic tube which, in turn, is disposed within a metal cylinder. The heating element is made of resistance wire and has a cyclical spiral shape for efficient heat transfer. Steam is introduced into one end of the metal cylinder, passes through the heater and exits from the other end as superheated steam.

3,783,237
APPARATUS FOR ELECTRICALLY PERFORATING SHEET MATERIAL
Colin S. McArthur, Winston-Salem, N.C., assignor to R. J. Reynolds Tobacco Company, Winston-Salem, N.C.
Filed Nov. 6, 1972, Ser. No. 304,180
Int. Cl. H05b 7/18
U.S. Cl. 219—384 6 Claims



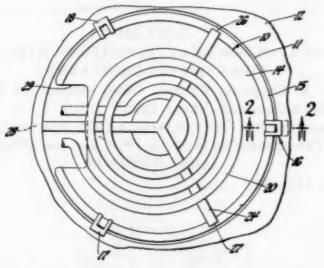
A web perforating apparatus for making rows of holes in a moving web, the rows being perpendicular to the direction of movement of the web and spaced longitudinally along the length of the web.

3,783,238
ELECTRIC CURING OVEN
George C. Dietz, Lancaster, and William G. Gross, York, both of Pa., assignors to Armstrong Cork Company, Lancaster, Pa.
Filed Nov. 8, 1972, Ser. No. 304,758
Int. Cl. F27d 11/02
U.S. Cl. 219—395 1 Claim



A curing oven is provided for the quick curing or drying of floor samples. The sample is held on a screen support within the oven, and high output, quick response electric radiant heaters mounted above and below the wire screen rapidly cure the sample.

3,783,239
VARIABLE EFFECTIVE DIAMETER REFLECTOR PAN ASSEMBLY FOR ELECTRIC RANGES
Harry W. Hill, 102 East Ripley Road, and Raymond Slowik, both of West Branch, Mich., assignors to Harry W. Hill, West Branch, Mich.
Filed July 17, 1972, Ser. No. 272,627
Int. Cl. H05b 3/68
U.S. Cl. 219—461 5 Claims



A reflector pan assembly for use in horizontally disposed electric range cooktops having a substantially circular heater element assembly opening of a certain diameter. A substantially circular reflector pan having an effective diameter less than said certain diameter is positioned in said opening. The reflector pan has a concave cross-section and a lip extending radially outward from the periphery thereof. At least one clip is affixed to said reflector pan at one or more locations on said lip so as to increase the effective diameter of the reflector pan to a larger diameter than the certain diameter. The clips and the lip support the reflector pan in the cooktop opening regardless of the concentricity of the opening and the reflector pan. In a first embodiment each clip has three tangs that receive the reflector pan lip and a flange extending radially outward of the pan for engaging the cooktop. In a second embodiment the lip has an S shaped cross-section, the opening on one side of the S shape receiving the reflector pan lip and the opposite end of which extends radially outward of the pan to

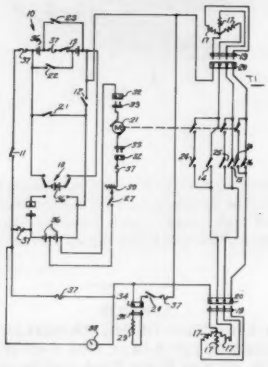
engage the cooktop. In a third embodiment the reflector pan lip is depressed and the depression is pierced to receive a clip that surrounds the depression and has a tang extending through the pierced opening and has a flange extending radially outward of the pan to engage the cooktop.

3,783,240

ELECTRICAL HEATING SYSTEM FOR BODY AND FOOT WARMTH

Courtney L. Drummond, Jr., C-8, 2103 Crimea Rd., Baltimore, Md.

Filed July 19, 1972, Ser. No. 273,106
Int. Cl. H05b *1/02*
U.S. Cl. 219—486 **1 Claim**



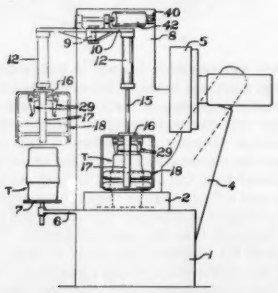
A portable electric heating system. This device consists primarily of plug in units having heating elements controllable manually and automatically. The circuit consists of a multiple number of manual and motor operated switches with a battery power pack for supplying current to the plug in units.

3,783,241

APPARATUS FOR HEAT CONDITIONING OF GREEN TIRES FOR VULCANIZATION

Francis J. Cimprich, Canton, Ohio, assignor to The B. F. Goodrich Company, Akron, Ohio

Division of Ser. No. 149,693, June 3, 1971, Pat. No. 3,712,769. This application Sept. 28, 1972, Ser. No. 293,073
Int. Cl. H05b *3/58*
U.S. Cl. 219—535 **6 Claims**



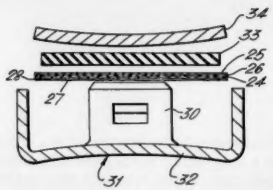
The preheating of selective thickest portions of a green tire as in the shoulder regions of a green tire as by a radian heater to condition the green tire for vulcanization such that the green tire when vulcanized by the molding press receives and utilizes its maximum amount of heat energy to reduce the vulcanizing and curing cycle.

3,783,242

ELECTRICAL CONNECTIONS USING DISCRETE, ELECTRICALLY-CONDUCTIVE PARTICLES

Dominic Paul Edmund Barnard, Witney, England, assignor to Smith Industries Limited, London, England

Claims priority, application Great Britain, Apr. 30, 1971, 12306/71
Filed Apr. 25, 1972, Ser. No. 247,490
Int. Cl. H05b *3/02*
U.S. Cl. 219—546 **11 Claims**



An electric heater for a rear windscreen of a motor vehicle including a heater element constituted by a thin strip of electrically resistive material and a pair of terminals clamped to respective ends of the element, has discrete electrically-conductive particles disposed between the ends of the element and the terminals to establish electrical connection therebetween. The strip is coated on one surface with a layer of adhesive to facilitate mounting of the element on the windscreen, and the particles adhere to the adhesive layer at the ends of the strip and impinge on the element through the adhesive layer.

3,783,243

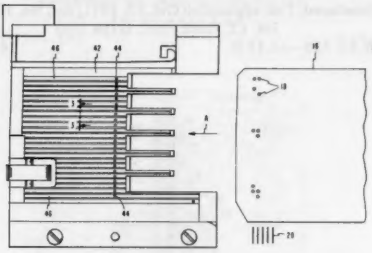
PNEUMATIC READING SYSTEM FOR DOCUMENT CARDS

Donald F. Jensen, Endicott, N.Y.; Richard E. Lagergren, Rochester, Minn.; Robert C. Lentz, Rochester, Minn.; John R. Reidenbach, Rochester, Minn., and Robert R. Schaffer, Endicott, N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed June 25, 1971, Ser. No. 156,728
Int. Cl. G06k *7/02*
U.S. Cl. 235—61.11 J **6 Claims**

A document card reading system comprising a pneumatic switch assembly located opposite an air plenum and between which perforated document cards are passed. The plenum and switch assembly have aligned air discharge and reception ports between which jetted air flows when not blocked by a document card, and each of the reception ports is connected with a circular portion of a flexible film carrying a helical copper cladding contact portion. A contact board is disposed above the helical contact portions, and the board has cooperating contact portions of copper cladding each of which is provided with a series of slots so that the helical contact portions may in effect make edge to edge contact with the contact portions on the contact board. The helical contact portions and the contact portions on the board are sealed with respect to atmosphere by means of diaphragms of flexible film carried by a back plate located above the contact board, with small openings being provided through the contact board to provide communication between the flexible film carrying the helical contact portions and the diaphragms. A pump, such as a positive displacement pump, provides air under pressure tc the plenum. Longitudinal grooves are provided in the facing

surfaces of the switch assembly and plenum in communication respectively with the ports therein to prevent crosstalk or unwarranted application of pressure to any of the ports in the switch assembly not in alignment with an aperture in the document card.

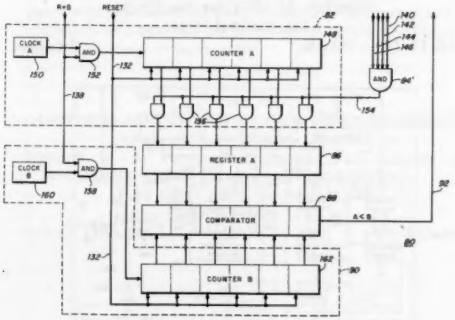


3,783,244

GAUGED PULSE WIDTH DETERMINING CIRCUIT

Christos Basil Kapsambelis, Canton, Mass., assignor to Computer Identics Corporation, Westwood, Mass.

Filed Aug. 2, 1971, Ser. No. 168,043
Int. Cl. G06k 7/14
U.S. Cl. 235—61.11 E 5 Claims



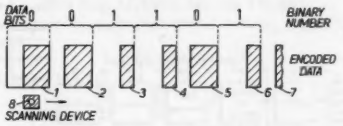
In an automatic identification system for reading a remote label containing information in the form of a plurality of vertically arrayed horizontal stripes which may include wide stripes and narrow stripes, a stripe width determining circuit which detects a stripe of known absolute width, measures the relative width of the stripe of known absolute width, stores a representation of the relative size of the stripe of known absolute width, measures the relative width of each of the other stripes, and compares the relative width of the stripe of known absolute width with the relative width of each of the other stripes to determine the absolute width of each of the other stripes.

3,783,245

DATA CODING SYSTEMS

John Stuart Howell, Broadstone, England, assignor to Plessey Handel Und Investments AG, Zug, Switzerland

Filed Oct. 12, 1971, Ser. No. 188,695
Claims priority, application Great Britain, Oct. 13, 1970, 48,674/70; Dec. 22, 1970, 60,731/70
Int. Cl. G06k 7/14, 19/06; G01n 21/30; G06k 9/13
U.S. Cl. 235—61.11 E 2 Claims



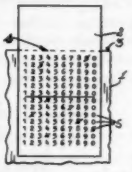
An optical coding system in which data is presented in the form of printed blocks and wherein data significance, i.e., 'mark' or 'space,' is determined by the width of the block relative to the width of an adjacent space or unprinted region.

3,783,246

CODING OF ARTICLES

Edward Bernard Bayer, 27 Melrose Gardens, North St., Illovo, Johannesburg, South Africa

Filed Sept. 21, 1971, Ser. No. 182,316
Claims priority, application South Africa, Sept. 29, 1970, 70/3676; May 25, 1971, 71/3359
Int. Cl. G06k 19/04; G09f 3/00
U.S. Cl. 235—61.12 R 2 Claims

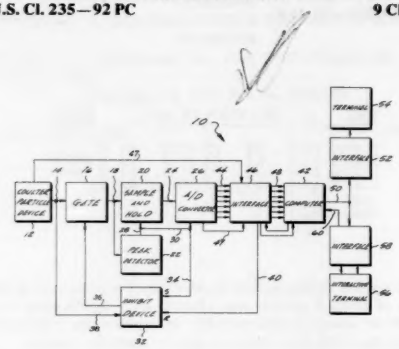


A method and apparatus for applying a coded mark to an article for the purpose of facilitating the subsequent treatment thereof in an automatic manner utilize a coding element which is adapted to apply the mark to the article by utilising an edge of the article and so to fix the relative position of the mark on the article. In one embodiment, the coding element comprises a stamp adapted to be pasted over an edge of the article in a predetermined manner, and on which the coded mark may be written. In another embodiment, the coding element comprises a rigid "L" shaped member adapted to engage around an edge of the article with one of its legs being provided with apertures through which, or projections by means of which, the mark may be applied to the article. The coding system utilizes a registered number system such as, for example, that of the International telephone number system, and apparatus suitable for use in the decoding of the mark on the articles is disclosed by way of example only.

3,783,247
PARTICLE ANALYZING SYSTEM FOR COULTER PARTICLE DEVICE AND METHOD

Robert I. Klein, Hialeah, and Walter R. Hogg, Miami Lakes, both of Fla., assignors to Coulter Electronics, Inc., Hialeah, Fla.

Filed Aug. 30, 1971, Ser. No. 176,101
Int. Cl. G06m *1/04*
U.S. Cl. 235—92 PC 9 Claims

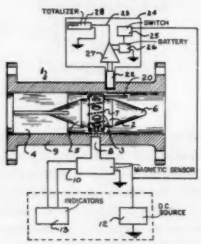


The output of a Coulter particle analysis device is converted into a computer acceptable code and stored in the computer in accordance with particle size information available for recall automatically or on command.

3,783,248
PARITY CHECK FOR TURBINE METER ELECTRONIC COUNTING INSTRUMENTATION OR THE LIKE

Harry Sugden, Jr., Statesboro, Ga., assignor to Emerson Electric Co., St. Louis, Mo.

Filed June 25, 1971, Ser. No. 156,688
Int. Cl. G01f *1/06*; G06f *25/00*
U.S. Cl. 235—92 FL 10 Claims

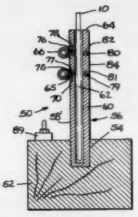


This invention provides a system separate and independent from the normal high frequency turbine meter signal circuit to yield a parity check signal. A pick-up separate from the normal pick-up collects a low frequency signal and records it on a locally mounted totalizer. A self-contained power system provides continuous output in case of failure of the main power system.

3,783,249
CODED MAGNETIC CARD AND READER

John Richard Wiegand, Valley Stream, L. I., N.Y., assignor to Milton Velinsky, Plainfield, N.J. and John R. Wiegand, Valley Stream, N.Y., part interest to each

Continuation-in-part of Ser. No. 5,632, Jan. 26, 1970, abandoned. This application Oct. 13, 1971, Ser. No. 189,027
Int. Cl. G06k *7/08*; G11b *5/00*
U.S. Cl. 235—61.11 D 14 Claims

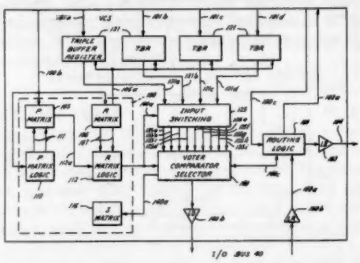


A coded pulse generation system includes a coded card and card reader. The card has a plurality of axially straight helically twisted magnetic wires disposed parallel to each other transversely of the card. Some of the wires may have polarities reversed from the remaining wires and may be disposed between two opaque layers. The card reader has a fixture including two spaced walls defining a slot into which the card is inserted. Permanent magnets and magnetic cores wound with wire coils are mounted on the walls of the fixture. While the card is being inserted into the slot, sequentially the magnetic state of each wire changes instantaneously generating a pulse in the coils.

3,783,250
ADAPTIVE VOTING COMPUTER SYSTEM

James C. Fletcher, Administrator of the National Aeronautics and Space Administration with respect to an invention of; Louis J. Koczela, 2900 Maple Tree Dr., Orange, Calif., and Donald S. Wilgus, 24481 Castello Cir., Mission Viejo, Calif.

Filed Feb. 25, 1972, Ser. No. 229,354
Int. Cl. G06f *15/16*
U.S. Cl. 235—153 AK 7 Claims



A computer system using adaptive voting to tolerate failures and operate in a fail-operational, fail safe manner. Each of four computers is individually connected to one of four external input/output (I/O) busses which interface with external subsystems. Each computer is connected to receive input data and commands from the other three computers and to furnish output data and commands to the other three computers.

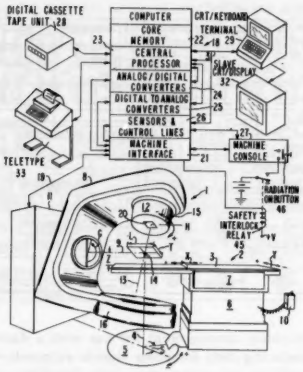
An adaptive control apparatus including a voter-comparator-switch (VCS) is provided for each computer to receive signals from each of the computers and permits adaptive voting among the computers to permit the fail-operational, fail-safe operation.

3,783,251

COMPUTER ASSISTED RADIATION THERAPY MACHINE

John M. Pavkovich, Palo Alto, Calif., assignor to Varian Associates, Palo Alto, Calif.

Filed Nov. 27, 1970, Ser. No. 93,331
Int. Cl. A61n 5/01
U.S. Cl. 235—151 9 Claims



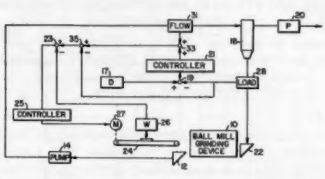
A computer assisted radiation therapy machine is disclosed. The machine includes a rotatable gantry having a radiation source portion which is rotatable about a patient treatment couch. Geometric and dose parameters of the machine for defining a prescribed treatment plan of radiation are stored in the memory of the computer. A readout and display means is provided for displaying the geometric and dose parameters of the defined radiation treatment plan. Editing and updating capability are provided for editing and updating the treatment plan with the cumulative radiation dose administered to each portal and the total cumulative dose administered to the patient. Each parameter of a proposed treatment plan is compared with permissible ranges of machine parameters stored in a memory to verify that the proposed treatment is within the permissible range of the machine.

3,783,252

CONTROL SYSTEM AND METHOD FOR A REVERSED BALL MILL GRINDING CIRCUIT

Richard E. J. Putman, Pittsburgh, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Apr. 7, 1972, Ser. No. 241,946
Int. Cl. B02c 25/00
U.S. Cl. 235—151.1 7 Claims



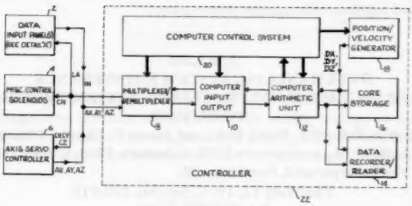
The dynamically fast in response and stable control arrangement for a reversed ball mill grinding circuit, which operates in accordance with the basic control algorithm that the new material feed rate to the reversed ball mill grinding circuit is controlled as a function of the net output solids flow production from the production cyclones associated with that grinding circuit plus the integral of the error between the desired solids flow load and the actual solids flow load of the grinding mill associated with that circuit.

3,783,253

NUMERICALLY CONTROLLED MACHINE TOOL

William T. Anderson, Arlington Heights, Ill., and Robert A. Wallace, Jr., Hacienda Heights, Calif., assignors to DoAll Company, Des Plaines, Ill.

Filed Aug. 13, 1971, Ser. No. 171,503
Claims priority, application Great Britain, Aug. 17, 1970, 39,500/70
Int. Cl. G06f 15/46
U.S. Cl. 235—151.11 5 Claims



A digital processing system is disclosed including manual controls to specify a process (step-by-step) and responsive means to execute the process and formulate an operating program of the process. The controls are related to the steps of the process and coding techniques are unnecessary. Signal generators provide digital signals responsive to the manual controls, which signals control a machine tool (in the disclosed embodiment) and are provided in a suitable form for recording. The system may be controlled to delay recording until the propriety of a step is verified by its performance. Means are included for predicting and accomplishing dimensions on the basis of various simple specifications, as for generating arcs and multiple dimension motions with allowance for tool diameter. On completion of a recorded program of operations, the system is operable under such control.

3,783,254

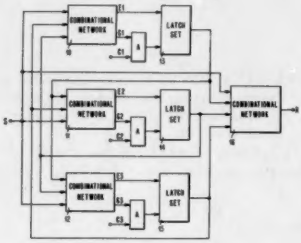
LEVEL SENSITIVE LOGIC SYSTEM

Edward Baxter Eichelberger, Purdy Station, N.Y., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Oct. 16, 1972, Ser. No. 297,543
Int. Cl. G06f 7/38; H03k 19/00
U.S. Cl. 235—152 20 Claims

A generalized and modular logic system for all arithmetic/logical units of a digital computer. Each arithmetic/logical unit of a computer is partitioned into sections formed of combinational logic networks and storage circuitry. The storage circuitry is sequential in operation and employs clocked dc latches. Two or more synchronous, nonoverlapping, independent system clock trains are used to control the latches. A single-sided delay dependency is imparted to the system. The feedback connections from the respective latch circuitry are made through combinational logic to other latch circuitry that has a system clock other than the system

clock acting on the initiating latch circuitry. With each latch, there is provided additional circuitry so that each latch acts as one position of a shift register having input/output and shift



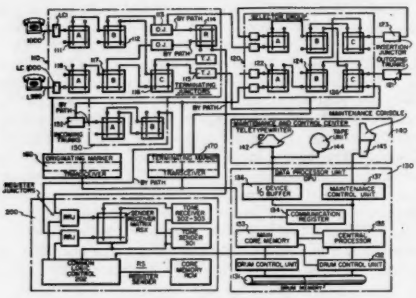
controls that are independent of the system clocks and the system inputs/outputs. All of the shift register latches are coupled together into a single shift register.

3,783,255

DATA HANDLING SYSTEM MAINTENANCE ARRANGEMENT FOR PROCESSING SYSTEM TROUBLE CONDITIONS

Charles K Buedel, Wood Dale, and James P. Caputo, Chicago, both of Ill., assignors to GTE Automatic Electric Laboratories Incorporated, Northlake, Ill.

Filed July 12, 1972, Ser. No. 270,910
Int. Cl. G06f *11/04*
U.S. Cl. 235—153 AK **15 Claims**



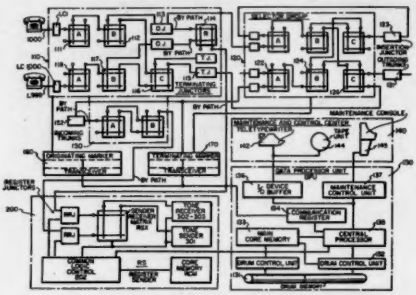
A maintenance arrangement for a data handling system producing data handling signals includes logic circuits for responding to a system trouble condition and in turn for generating a servicing request signal to cause servicing equipment to initiate diagnostic operations for the data handling system, and memory control logic circuits that respond to the servicing request signal for causing system trouble identity information indicative of the identity of a certain group of data handling signals associated with the system trouble request signal to be conveyed to the memory of the data handling system for storage therein so that the servicing equipment is assisted in locating the source of the trouble condition. The memory control circuits also supply address information for the system memory for directing the system trouble identity information into a maintenance location therein. After the servicing equipment commences its diagnostic functions, it sets a service bit in the system memory, and in response thereto, the system trouble logic circuits are thereafter inhibited from requesting the servicing equipment for other trouble conditions occurring in connection with the data handling signals until the servicing equipment has completed its function and clears the service bit from the system memory.

3,783,256

DATA HANDLING SYSTEM MAINTENANCE ARRANGEMENT FOR RECHECKING SIGNALS

James P. Caputo, Chicago, and Gerald O'Toole, Elmhurst, both of Ill., assignors to GTE Automatic Electric Laboratories Incorporated, Northlake, Ill.

Filed July 12, 1972, Ser. No. 270,916
Int. Cl. G06f *11/04*
U.S. Cl. 235—153 AK **16 Claims**



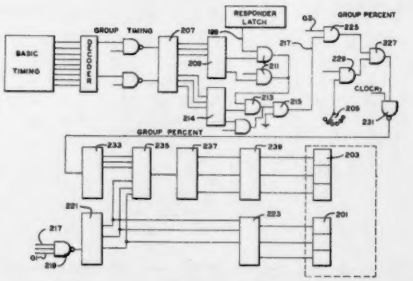
A maintenance arrangement for use with a data handling system producing data handling signals responds to a false signal condition to cause the data handling system to reproduce the data handling signals by adjusting a timing generator providing the timing control for the data handling system and by inhibiting from changing the inputs to the logic circuits generating the signals, so that the data signals may be reviewed to determine whether the false signal condition was a self-correcting error condition as in the case of a momentary false signal condition caused by noise or the like, or a more permanent fault condition which requires servicing by other equipment. By selectively adjusting different timing distributors of the timing generator, only certain ones of the handling signals and not all of them are reproduced.

3,783,257

RESPONSE SYSTEM WITH IMPROVED COMPUTATIONAL METHODS AND APPARATUS

David Friedman, Framingham, Mass., and Bernard Mortimer Segal, Binghamton, N.Y., assignors to The Singer Company, New York, N.Y.

Division of Ser. No. 62,382, Aug. 10, 1970, Pat. No. 3,656,243.
This application Sept. 20, 1971, Ser. No. 182,116
Int. Cl. G06f *7/39*
U.S. Cl. 235—156 **9 Claims**



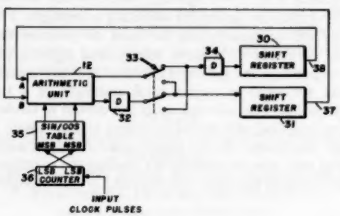
An improved classroom response system of the type wherein a number of students are provided with individual responders each having a plurality of switches selectively

operable to indicate the student's choice of response to a question or other stimulus. The invention is directed to novel methods and apparatus for performing arithmetic operations and displays which make available to the instructor information helpful in conducting the class and otherwise simplify instructional tasks. Included are means for automatically indicating which of several responses is "correct" by determining the response to which the highest weight has been assigned by the instructor. Also disclosed are novel means to calculate each individual student's cumulative score and to indicate automatically the students whose scores fall below a preselected acceptable percentage of the maximum possible score. Displays of the total number of students responding to a given question, and the percent of the class which has responded with any of the possible choices are provided.

3,783,258
FFT PROCESSOR UTILIZING VARIABLE LENGTH SHIFT REGISTERS

Adolph M. Chwastyk, Silver Spring, Md., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Nov. 3, 1971, Ser. No. 195,394
Int. Cl. G06f *15/34*
U.S. Cl. 235—156 **2 Claims**



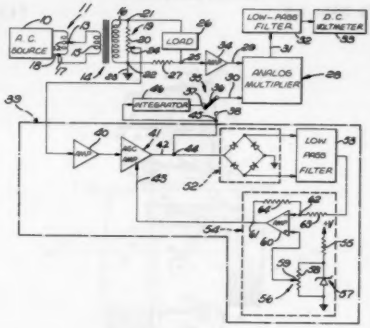
A processor for radar and multichannel sonar spectral analysis of band-limited input signals, is based on a shift register implementation of a fast Fourier transform algorithm coupled with a single flow-through arithmetic unit. Speed is obtained by using an organization that performs the rapid data reordering required for execution of the algorithm. A post-processing unit is used to increase the quality of estimation of line spectra in statistically short term spectra. The unit can be used either as an integrator or as a first order recursive filter. The post-processing unit is implemented in a floating point format to maintain the dynamic range.

3,783,259
APPARATUS FOR RESOLVING A COMPLEX A.C. VOLTAGE OR CURRENT INTO ITS VECTOR COMPONENTS

Neil A. Marshall, San Jose, Calif., assignor to International Telephone and Telegraph Corporation, New York, N.Y.

Filed Oct. 20, 1972, Ser. No. 299,638
Int. Cl. G06g *7/16, 7/22*
U.S. Cl. 235—186 **13 Claims**

A method and system which may be employed to, for example, produce a D.C. voltage or current directly proportional to I cos ϕ_n or I sin ϕ_n, where I is the peak A.C. current through a load, and ϕ_n is the phase of the current. Current and voltage analogs of the load current and voltage, respectively, are multiplied. A low pass filter eliminates the A.C. terms of the multiplier output. The D.C. term is directly proportional to I cos ϕ_n or I sin ϕ_n. A ninety degree phase shifter with a single-pole, double-throw switch makes, for example, manual selection of one of the two outputs I COS ϕ_n and I sin ϕ_n possible. Alternatively, a square or other periodic wave may be used for the voltage analog. In any case, the voltage analog or equivalent has a peak amplitude which may be maintained constant by a

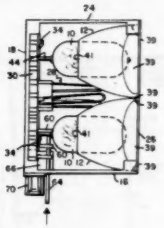


variable gain amplifier or by sampling the above breakdown voltage drop across a zener diode. The analog voltage or current of the products I cos ϕ_n and I sin ϕ_n may be read on a D.C. voltmeter or milliammeter, respectively, calibrated in current.

3,783,260
SELECTIVE ACTUATING MECHANISM FOR PERCUSSIVE PHOTOFLASH LAMP ARRAY

David R. Broadt, Lewisburg, and Donald E. Armstrong, Williamsport, both of Pa., assignors to GTE Sylvania Incorporated, Danvers, Mass.

Filed June 6, 1972, Ser. No. 260,286
Int. Cl. G03b *15/02*
U.S. Cl. 240—1.3 **29 Claims**



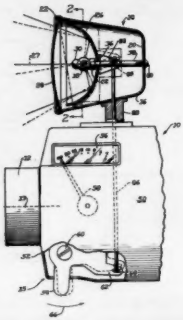
For a photoflash assembly comprising a plurality of percussively-ignitable flashlamps arranged in a planar array with respectively associated reflectors and preenergized striker springs, a selective actuating mechanism for sequentially releasing the striker springs to fire respective flashlamps in response to successive indexing. The selective actuating mechanism comprises a coplanar train of intermeshing spur gears having a number of circumferentially spaced projecting ramps. The lamps and striker springs are supported on the end surfaces of shafts upon which the gears are rotatably mounted. The strikers are radially mounted on each shaft to project over the surrounding gear and lie in the path of travel of the ramps. Rotational indexing of the gear train causes one of the ramps to release a striker. A ratchet retains the position of the gears after each indexing cycle, and the sequence of releasing the strikers in response to successive indexing is programmed by the number and circumferential location of the ramps.

3,783,261

PARALLAX COMPENSATION CAMERA LIGHT

Rudolf Hartmann, Skokie, Ill., assignor to Bell & Howell Company, Chicago, Ill.

Filed Nov. 1, 1972, Ser. No. 302,682
Int. Cl. G03b 15/02
U.S. Cl. 240—1.3 7 Claims



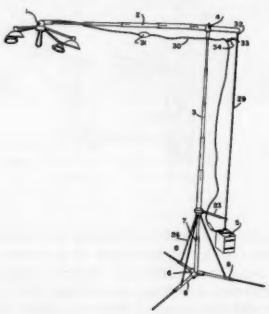
A light for a camera having an objective lens coupled to an automatic focusing apparatus. A link assembly connects the focusing apparatus to a pivotally supported camera light reflector. The position of the reflector is varied in accordance with the setting of the focusing apparatus so as to direct the light beam at the subject over a wide range of subject to camera distances.

3,783,262

PORTABLE SURGICAL LAMP

Benjamin D. Pile, Colorado Springs, Colo., assignor to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed Apr. 3, 1973, Ser. No. 347,533
Int. Cl. F21v 21/22
U.S. Cl. 240—1.4 9 Claims



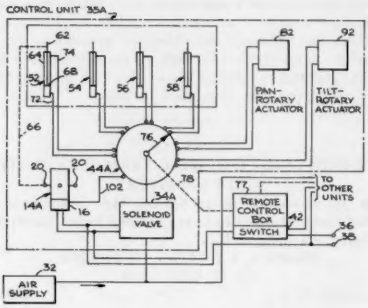
The invention is a portable, battery-operated, lighting apparatus to provide illumination for the performance of medical treatment and surgical procedures in the field where normal electric power is not available. The light source comprises lightweight, collapsible, tubular members arranged to provide a tripod stand and vertical support surmounted by an adjustable counterbalanced arm carrying a lamp cluster providing shadow-free lighting at one end and a suspended battery at an opposite end to counterbalance the lamp cluster. The device may be transported and assembled by one man without requiring any additional equipment.

3,783,263

REMOTE LIGHTING CONTROL SYSTEM

William Marion Cruse, 600 W. End Ave., Apt. 8A, New York, N.Y.

Filed Aug. 19, 1971, Ser. No. 173,097
Int. Cl. F21p 5/02
U.S. Cl. 240—3 12 Claims



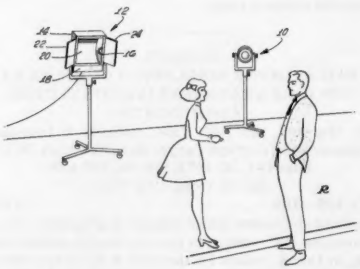
A remotely controlled lighting system which utilizes pneumatically driven actuators for adjusting a spotlight. The pneumatically driven system can be used to position moveable spotlight elements to achieve the desired lighting effect, as well as to position the spotlight about its moveable axes. Selector units are used to adjust each spotlight of a theatrical lighting system. The selector units are driven in tandem, with air being supplied only to the activator system which is being adjusted. Moreover, the air supply used to adjust each of the spotlights may also be utilized for cooling the spotlights when the entire system has been adjusted and is in prolonged operation.

3,783,264

REFLECTIVE BARNDOOR

Fenton D. Hamilton, Los Angeles; Richard B. Glickman, Sherman Oaks; George R. Hartz, Canoga Park, and Joseph N. Tawil, Woodland Hills, all of Calif., assignors to Berkey-Colortran, Inc., Burbank, Calif.

Filed July 7, 1972, Ser. No. 269,709
Int. Cl. F21p 5/00
U.S. Cl. 240—3 3 Claims

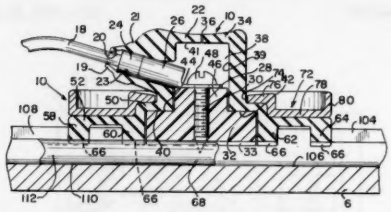


A soft fill luminaire for minimizing shadows on the field to be illuminated is provided with reflective barndoors. The barndoors raise the level of fill illumination at the center of the field without materially reducing the fill illumination at the margins of the field.

3,783,265
ADAPTER FOR MARKER LIGHT

George W. Carr, Cincinnati, Ohio, assignor to Pullman Incorporated, Chicago, Ill.

Filed Nov. 6, 1972, Ser. No. 304,153
Int. Cl. B60q 1/32
U.S. Cl. 240—8.2 19 Claims

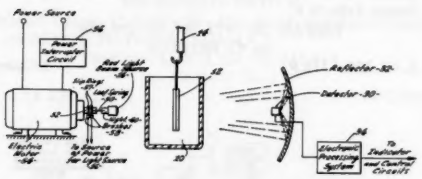


An adapter for attaching any vehicle marker light to the side of the vehicle provided with a groove in which is carried an electrical conductor where the adapter includes a lead connection with the grounded marker light and a conductor piercing screw carried in a guide bushing held against the side of the vehicle by an adapter receptacle provided with a slit in its top to have access to the piercing screw and which is held by an adapter retainer ring structure to hold the receptacle tightly against the side of the vehicle and the conductor, the receptacle having a drainway for allowing condensation or moisture to escape from the receptacle.

3,783,266
SCANNING MECHANISM FOR FILM DEVELOPER, AND THE LIKE

David Paul Gregg, 1936 Kelton Ave., Los Angeles, Calif.

Filed Dec. 14, 1972, Ser. No. 315,073
Int. Cl. F21p 3/06; G03d 3/10
U.S. Cl. 240—10.1 4 Claims



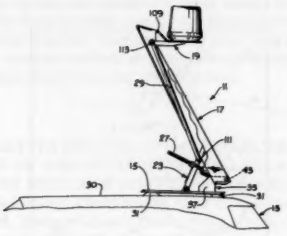
A light scanning mechanism for use in conjunction with automatic X-ray film developing apparatus, and the like. The mechanism permits a red beam to be repeatedly scanned across the film being developed in order to provide appropriate control signals so that the developing process may be stopped automatically when a desired density has been reached. The scanning mechanism includes a resilient member, such as a leaf spring, which couples the source of the red beam of light to a motor drive shaft. The motor is intermittently energized to cause the red beam to be cyclically moved in a random spiral scanning path.

3,783,267
EXTENDIBLE VEHICLE LIGHT MOUNT

Robert E. Thomas, 1323 N. Spurgeon St., Santa Ana, Calif.

Filed July 21, 1972, Ser. No. 273,729
Int. Cl. B60g 1/00
U.S. Cl. 240—57 14 Claims

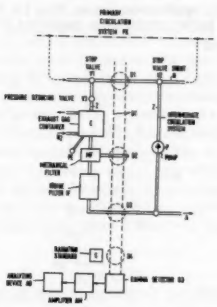
An extendible vehicle light mount comprising a boom pivotally connectible to the roof of a vehicle for pivotal movement between an elevated position and a retracted position and a light supporting arm pivotally connected to the boom. The boom is elevated by an appropriate linkage which also controls the angular position of the light supporting arm relative to the boom. The vehicle light mount is mounted on the vehicle so that the longitudinal axis of the boom is generally parallel to the longitudinal axis of the vehicle in the retracted position. A warning light is mounted on the light supporting arm so that the warning light is substantially elevated above the roof of the vehicle when the boom is in the elevated position.



3,783,268
DEVICE FOR MEASURING ACTIVITY CONCENTRATION IN PRIMARY CIRCULATION SYSTEMS OF NUCLEAR REACTORS

Karl Heinz Neeb; Herbert Neidl, both of Erlangen, and Heinz Stockert, Nurnberg, all of Germany, assignors to Siemens Aktiengesellschaft, Berlin & Munich, Germany

Filed July 14, 1971, Ser. No. 162,437
Claims priority, application Germany, July 30, 1970, P 20 37 796.2
Int. Cl. G01n 23/12
U.S. Cl. 250—83.3 R 9 Claims



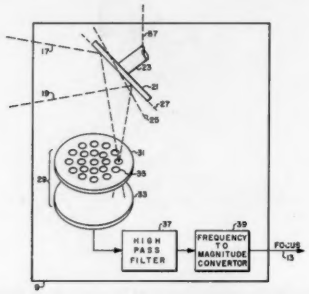
A device for measuring the activity concentration of radioactive fission and corrosive products in coolant primary circulation systems of nuclear reactor plants comprises a shunt to the primary circulation stem. The shunt has a closed pipe system comprising stop valves, pressure reducing valve means, exhaust gas container means and filter means. A displaceable high-resolution gamma detector in operative proximity with the closed pipe system measures the contents of the filter means at different points of the pipe system.

3,783,269

AUTOMATIC FOCUS POSITIONING CIRCUIT

Robert G. McConnell, Englewood, Colo., assignor to Honeywell Inc., Minneapolis, Minn.

Filed June 5, 1972, Ser. No. 259,788
Int. Cl. G01j 1/20; G01b 9/00
U.S. Cl. 250—201 8 Claims



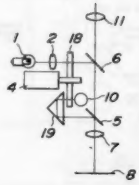
An automatic focusing apparatus includes a lens means which is driven back and forth between two extreme positions. A wobbulating mirror reflects radiations passing through the lens means, to a multi-apertured mask, positioned at a predetermined plane, at which an image of a scene is to be formed. A light detector responds to radiations passing through the apertures in the mask to effect the generation of a signal which varies with the degree of sharpness of the image. A memory device stores a representation of the position of the lens means at which the image appeared in focus during a first movement of the lens means between the extreme positions, and thereafter effects the termination of movement of the lens means at that in-focus position during a second movement between the extreme positions.

3,783,270

FOCUS INDICATING DEVICES

Shinichi Kamachi, Tokyo, Japan, assignor to Olympus Optical Company Limited, Tokyo, Japan

Filed May 17, 1972, Ser. No. 254,313
Claims priority, application Japan, May 19, 1971, 46/33237
Int. Cl. G01j 1/20; H01j 3/14
U.S. Cl. 250—201 4 Claims



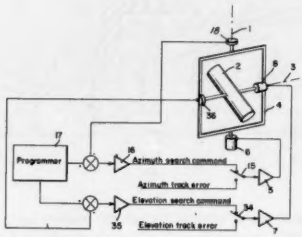
Focus indicating device for use in optical measuring devices comprises a light source, a condenser lens, a grating provided at its periphery with equidistant and parallel lines and adapted to be moved, an objective lens, an object to be measured and a photoelectric converter element. The grating is located in front of the photoelectric converter element and the light rays emanated from the light source after passing the objective lens, the object to be measured and the grating are impinged on the photoelectric converter element. The grating is moved such that the light rays are traversed by the lines of the grating to generate from the photoelectric converter element a signal for indicating the focal condition of the objective lens.

3,783,271

RADIATION TRACKING SYSTEM

Edward A. Abbott, Jr., Granada Hills, and David I. Blanchard, Los Angeles, both of Calif., assignors to Hughes Aircraft Company, Culver City, Calif.

Filed Sept. 27, 1971, Ser. No. 183,970
Int. Cl. G01j 1/20
U.S. Cl. 250—203 R 21 Claims



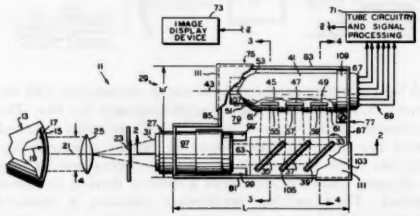
A tracking system including a staggered array of radiation detectors for use with a telescope wherein the configuration of the array, the geometry of sweep of the array, and the electronics connected to the elements of the array are combined to produce control signals adapted to be used to point the optical axis of the telescope at the geometrical centroid of all signals, above a predetermined amplitude, within the field of view of the apparatus.

3,783,272

OPTICAL-TO-ELECTRICAL TRANSDUCER ASSEMBLAGE

George Norman Williams, and Robert F. Wilson, both of Seneca Falls, N.Y., assignors to GTE Sylvania Incorporated, Seneca Falls, N.Y.

Filed July 10, 1972, Ser. No. 270,216
Int. Cl. H01j 5/16
U.S. Cl. 250—216 R 5 Claims



A packaged assemblage is provided for an optical-to-electrical signal transducer employed in a system for displaying a film image on the screen of a CRT display device. The assemblage includes a condensing lens, a related plural-mirror system, and a single multi-channel photomultiplier tube all of which are compactly arranged in optical alignment within a plural-sided, light-tight and dust-free enclosure. The desired compaction of the assemblage is achieved within the walled enclosure by orienting the tube in a manner that its longitudinal axis is parallel with the optical axis of the condensing lens.

3,783,273

METHOD AND APPARATUS FOR CONTROLLING A LIGHT SOURCE OF AN OPTICAL READER MECHANISM

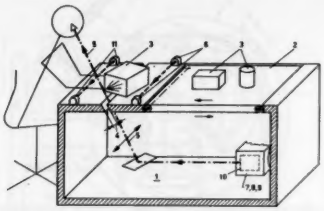
Walter Strohschneider, Oberrieden, Switzerland, assignor to Zellweger AG, Uster, Switzerland

Filed July 3, 1972, Ser. No. 268,692

Claims priority, application Switzerland, July 8, 1971, 10079/71

Int. Cl. G01n 21/30; G06m 7/00

U.S. Cl. 250—223 10 Claims



A method of controlling a light source of an optical reader mechanism wherein a light source generating a scanning light beam is essentially only placed into its operating condition during the time-span required for carrying out a scanning operation, during the remaining time it is controlled so as to assume a preparatory condition with reduced or interrupted power supply.

The apparatus for carrying out the aforesaid method embodies a light source for generating the scanning light beam and a supply means associated with such light source. A control mechanism is provided for the supply means for regulating the respective operating and preparatory condition of the light source. The control mechanism has delivered thereto an input signal as a function of the throughpassage of an object through a reading zone of the reader mechanism.

3,783,274

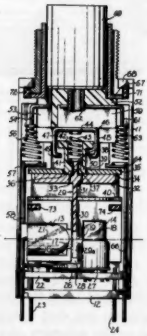
SOLID-STATE SWITCH

Herbert Towne, 17 Rolling Dr., Glen Head, and Harold Rapp, 59-23 154th Pl., Flushing, both of N.Y.

Filed Apr. 6, 1972, Ser. No. 241,664

Int. Cl. H01j 39/12

U.S. Cl. 250—221 R 14 Claims



A switch utilizing a solid-state circuit in place of ohmic contacts. A light-emitting diode illuminates a photosensitive solid-state device to make the circuit conductive or non-conductive, depending upon whether the light path from the diode to the photosensitive device is interrupted by a shutter or not. The shutter is controlled by an actuator to move between "on" and "off" positions. Motion of the shutter may be made more sudden and tease-proof by attaching the shutter to a magnetic device attracted to a fixed member to prevent the shutter from moving until enough force is applied via the actuator to overcome the magnetic attraction. Movement may be further speeded by connecting the shutter and actuator by a lost motion device and placing a compression spring between the shutter and actuator to store energy to overcome the magnetic field and then release the stored energy sharply. Another fixed magnetic member at the other end of travel of the shutter provides audible detection of operation and some energy storage and release for return motion.

3,783,275

APPARATUS FOR THE OPTICAL-ELECTRICAL SCANNING OF A DRAWING HAVING A LARGE NUMBER OF POINTS OF DIFFERENT COLORS

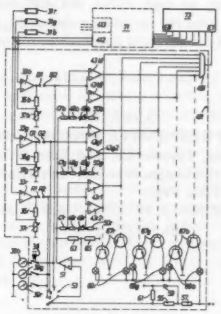
Reinhold Oelmayer; Albert Seelos, both of Kaufbeuren; Winfried Reif, Stuttgart-Rohr; Denes Nagy, Plattenhardt, and Hans Joachim Stock, Freiburg, all of Germany, assignors to Firma Franz Morat GmbH, Stuttgart, Germany

Filed Apr. 7, 1972, Ser. No. 242,071

Claims priority, application Germany, Apr. 17, 1971, P 21 18 720.2

Int. Cl. G01j 3/34

U.S. Cl. 250—226 20 Claims



Apparatus for scanning a drawing consisting of a large number of points each of which is of a colour selected from a number of colours, and for converting the information obtained by scanning the points into colour signals characteristic of the individual colours, comprising a scanning head movable relative to the drawing having a number of optical electrical scanning elements each responding to a definite spectral range and colour discriminators connected to the scanning head for producing a respective colour signal only when the analogous output signals of all the scanning elements associated with it, or signals derived from the said output signals, lie within an upwardly and downwardly limited tolerance range.

3,783,276

DUAL BEAM OPTICAL SYSTEM

Robert W. Allington, Lincoln, Nebr., assignor to Instrumentation Specialties Company, Lincoln, Nebr.

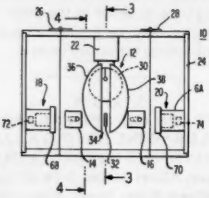
Filed June 5, 1972, Ser. No. 259,868

Int. Cl. H01j 39/12

U.S. Cl. 250—226 46 Claims

To compensate for variations in the intensity of light emitted from different locations in or in different directions from a lamp, a radiating member is located in one focus of an ellipsoidal reflector to receive light from the lamp which is mounted with its bright spot in the other focus of the ellipsoidal reflector and to radiate in directions in line with a narrow dimension of the radiating member two oppositely

directed, proportional-intensity beams of light through two aligned light-beam holes in the walls of the ellipsoidal reflector on opposite sides of the radiating member, with the radiating member having, in a first embodiment, a surface that diffuses the light so that it is radiated with proportional intensities into both beams in accordance with Lambert's cosine law, in a second embodiment, a surface that fluoreses light with proportional intensities into both beams, and in a third embodiment, a surface with flourescent particles that both diffuse the light and fluorese in response to it, all three embodiments causing the beams of light to be of proportional intensity. Interchangeable filters in the light beams of the third embodiment are selected to pass either the diffused light or the fluorescent light from the radiating member, thus enabling the system to be used for different purposes by changing filters.

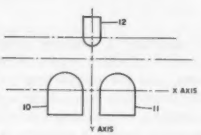


3,783,277

LIGHT RESPONSIVE SENSOR SYSTEM

James R. Younkin, Fayetteville, and John M. Nixon, Springdale, both of Ark., assignors to Edo-Aire Mitchell Industries, Inc., Mineral Wells, Tex.

Filed June 2, 1972, Ser. No. 259,044
Int. Cl. H01j *39/12*
U.S. Cl. 250—237 R **12 Claims**



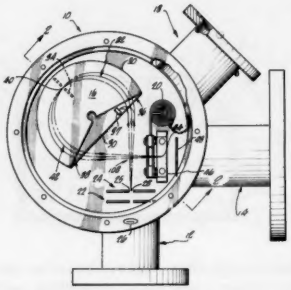
Relative movement between a barrier positioned with relation to light sources and light sensors produces a signal at the light sensors related to the barrier movement. Two light sources are alternately energized from a regulated voltage controlled current source to provide two sources of light of equal intensity with system perturbations minimized. Two light sensors positioned from the light sources respond to light from both of the alternately energized sources. A signal from a first of the light sensors connects to a voltage follower amplifier that provides a system output signal that varies with and is related to barrier movement. The second light sensor provides a signal to a regulator circuit that controls the current source to the light sources. This signal from the second light sensor is compared with a signal from a reference source to provide light source regulation. As an alternate embodiment, signals from both light sensors are coupled to voltage follower amplifiers each having an output signal related to the barrier movement. These two output signals are summed for a system output signal.

3,783,278

SINGLE MAGNET TANDEM MASS SPECTROMETER

Leslie A. Cambey, Arcadia, Calif., assignor to Bell & Howell Company, Chicago, Ill.

Continuation of Ser. No. 819,840, April 28, 1969. This application Dec. 2, 1971, Ser. No. 204,336
Int. Cl. H01j *39/34*
U.S. Cl. 250—299 **17 Claims**



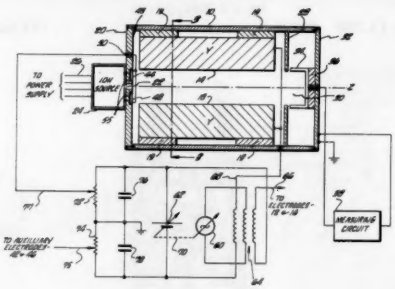
A mass analyzer utilizing a single magnet for providing two mass analyzing sectors in tandem. The analyzer is equipped with a magnet defining an ion trajectory subtending an angle of deflection between 180° and 360°. A slit is located within the magnet at a first point of focus for substantially limiting ions passing beyond the slit to those of a predetermined mass.

3,783,279

HYPERBOLIC FIELD MASS FILTER

Wilson M. Brubaker, 1954 Highland Oaks Dr., Arcadia, Calif.

Filed Mar. 3, 1971, Ser. No. 120,482
Int. Cl. H01j *39/34*
U.S. Cl. 250—292 **9 Claims**



A hyperbolic field mass filter (quadrupole or monopole) is described which includes at least two primary electrodes, an ion entrance aperture, an ion exit aperture and a.c. and d.c. bias sources coupled to the primary electrodes for producing a.c. and d.c. field components between the electrodes. At least one auxiliary electrode is disposed between the primary electrode and the entrance aperture together with means for biasing the auxiliary electrode with d.c. potentials to neutralize the d.c. field produced by the primary electrodes in the vicinity of the entrance aperture.

3,783,280

METHOD AND APPARATUS FOR CHARGED PARTICLE SPECTROSCOPY

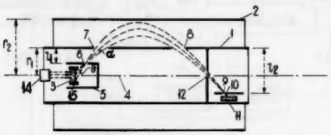
John Merza Watson, Manchester, England, assignor to Associated Electrical Industries Limited, London, England

Filed Mar. 21, 1972, Ser. No. 236,748

Claims priority, application Great Britain, Mar. 23, 1971, 7,594/71

Int. Cl. H01j *39/34*

U.S. Cl. 250—305 **19 Claims**



In a cylindrical mirror analyzer, charged, particles from a source are deflected in the radial electric field between a pair of coaxial tubular electrodes, and are brought to a focus. A collector aperture positioned at the focus selects particles of predetermined energy, these particles being detected by a suitable detector. The particles cross the axis at some point between the source and the focus. An apertured member located at this point prevents skew electrons (i.e. electrons not travelling in radial planes) from reaching the focus. In this way the performance of the analyzer is improved.

3,783,281

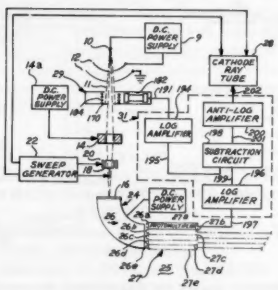
ELECTRON MICROSCOPE

Albert V. Crewe, Palos Park, Ill., assignor to The Perkin-Elmer Corporation, Norwalk, Conn.

Continuation of Ser. No. 73,117, Sept. 17, 1970, abandoned. This application Feb. 3, 1972, Ser. No. 223,382

Int. Cl. H01j *37/26*; **G01n** *23/22*

U.S. Cl. 250—311 **4 Claims**



The application describes improved techniques for correcting an output detection signal from an electron microscope for aberrant variations in the electron beam produced by the microscope. The preferred embodiment comprisea a monitor assembly for producing a reference signal proportional to the magnitude of the electron beam and a correction circuit for varying the magnitude of the detection signal in response to variations in the reference signal. The monitor assembly may comprise a diverting assembly for diverting a portion of the electron beam from its normal path to produce a flow of diverted electrons and a transducer assembly for producing a signal proportional to the number of diverted electrons so that a reference signal is produced. The correction circuit may comprise logarithmic amplifiers, a subtraction circuit, and an antilogarithmic amplifier for producing a signal which corresponds to the ratio of the detection signal and the reference signal. This corrected signal may be used to drive a cathode ray tube display of the specimen.

3,783,282

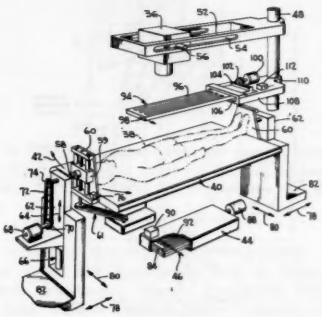
STEREOSCOPIC RADIOGRAPHY TECHNIQUES AND APPARATUS

Reuben Hoppenstein, 710 Park Ave., New Rochelle, N.Y.

Filed June 7, 1971, Ser. No. 150,297

Int. Cl. G01n *23/04*; **H01j** *37/22*

U.S. Cl. 250—313 **10 Claims**



Method and apparatus for stereographic radiography are disclosed, the apparatus including a source of X-rays, a table or cradle disposed beneath the X-ray source, and a cassette disposed beneath the table or cradle, the cassette including a pair of image intensifying screens, a pair of grids between the image intensifying screens, and a double emulsion film between the grids. During the exposure the cradle is moved through an arc while simultaneously creating relative movement between the grids and the film. In the preferred embodiment a shield having a series of slits is disposed between the X-ray source and the patient, with the slits in alignment with the slots in the grids.

3,783,283

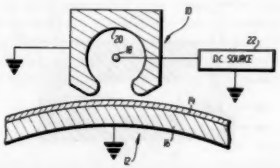
CORONA CHARGING DEVICE WITH SEMICONDUCTIVE SHIELD

Daniel Paul Smith, Jr., Creamery, Pa., assignor to Sperry Rand Corporation, New York, N.Y.

Filed Sept. 26, 1972, Ser. No. 292,285

Int. Cl. G03g *15/00*

U.S. Cl. 250—324 **8 Claims**



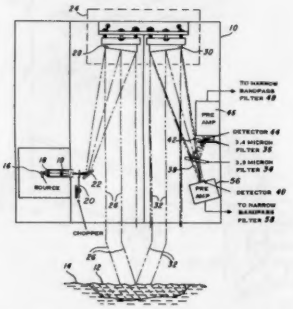
A corona charging device, suitable for imparting an electrostatic charge to a photoconductive surface, comprises a corona discharge electrode having a high voltage applied thereto, and a grounded semiconductive shield partially surrounding the electrode. As compared to prior art conductive shields, the semiconductive shield results in a more efficient charging device since less of the corona ion current flows to the shield. It also permits charging of the photoconductive sur-

face to a higher voltage than prior art devices without the occurrence of arcing, and if arcing does occur it takes place between the electrode and the shield rather than between the electrode and the photoconductive surface.

3,783,284
METHOD AND APPARATUS FOR DETECTION OF PETROLEUM PRODUCTS

Kent McCormack, Richardson, Tex., assignor to Texas Instruments Incorporated, Dallas, Tex.

Filed Oct. 28, 1971, Ser. No. 193,439
Int. Cl. G01n *21/34*
U.S. Cl. 250—339 **17 Claims**

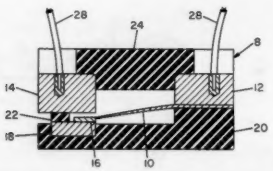


Disclosed is a method and apparatus for indicating the presence or absence of petroleum products in a water area by utilizing an active infrared source which illuminates the water area which may contain a petroleum product. The reflected infrared radiation is filtered by two filters at two different wavelengths, λ_1 and λ_2. Two infrared detectors produce signals which are proportional to the detected reflected radiation at the wavelengths λ_1 and λ_2. A processing channel is connected to each detector, the processing channels each including a log amplifier, the output of which is coupled to a differencing circuit which produces an output signature signal, $\ln [V(\lambda_1)/V(\lambda_2)]$, which indicates either the presence or absence of the petroleum products in the water area.

3,783,285
NEUTRON-FLUX RESPONSIVE SWITCH

Robert Parker, Danville, Calif., assignor to The United States of America as represented by the United States Atomic Energy Commission, Washington, D.C.

Filed Sept. 6, 1972, Ser. No. 286,787
Int. Cl. G01t *3/00*
U.S. Cl. 250—390 **3 Claims**



The present invention is a neutron-activated switch having a neutron-flux sensitive disk soldered to a spring steel strip. The spring steel strip has an end attached to one electrical contact while the other soldered end is bent away from a second contact. A neutron burst impinging on the neutron-sensitive disk generates heat which melts the solder thereby allowing the switch to close. The switch has application in circuits used in specimen crack detection systems.

3,783,286
X-RAY IMAGE BRIGHTNESS STABILIZER

Phillip A. Kremer, Parma, Ohio, assignor to Picker Corporation, Cleveland, Ohio

Continuation of Ser. No. 720,280, April 10, 1968, abandoned.
This application Dec. 23, 1970, Ser. No. 101,095
Int. Cl. G03b *41/16*; H05g *1/60*
U.S. Cl. 250—401 **53 Claims**

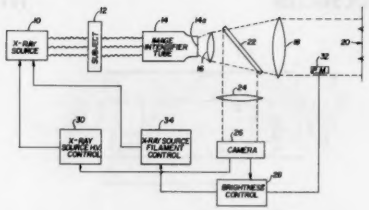
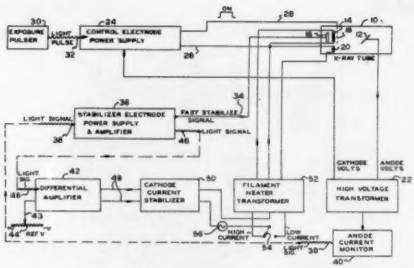


Image intensifier brightness for both cine and fluoroscopic use is controlled by varying X-ray tube filament current. In cine operation, brightness is integrated over each time interval that the camera shutter is opened, and, while the shutter is next closed, the integral is compared with a standard. Comparison output current controls X-ray tube filament curent. In fluoro-scopic operation, a signal proportional to brightness is continuously compared to a standard and the X-ray tube filament current is varied in accordance with the comparison.

3,783,287
ANODE CURRENT STABILIZATION CIRCUIT X-RAY TUBE HAVING STABILIZER ELECTRODE

George L. Fulton, Chicago; Robert M. Gager, Elmhurst, and Zed J. Atlee, Oak Brook, all of Ill., assignors to Picker Corporation, Cleveland, Ohio

Filed May 18, 1972, Ser. No. 254,646
Int. Cl. H05g *1/34*
U.S. Cl. 250—404 **10 Claims**



A stabilization circuit for maintaining the anode current of an x-ray tube substantially constant is described including a first stabilization means in which a stabilization voltage signal proportional to changes in the anode current is applied to a stabilization electrode in such tube. A stabilization electrode is positioned behind the cathode filament with respect to the anode and collects a portion of the electrons emitted from the filament to reduce the number of electrons striking the anode. The amplitude of the stabilization voltage determines the amount of electrons collected by the stabilizer electrode and thereby maintains the anode current constant. A second stabilization means of slower operation gradually takes over from the first stabilization means and varies the cathode filament heating current in order to maintain the electron flow to the anode constant in response to a control signal produced by a differential amplifier comparator means which is proportional

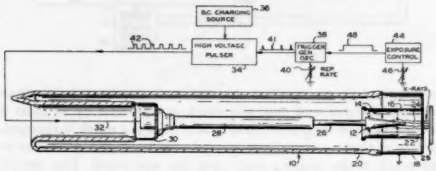
to the stabilization voltage applied to the stabilizer electrode. Light signal coupling is employed between the x-ray tube anode current monitor and the stabilizer electrode power supply, as well as between such power supply and the differential amplifier for voltage insulation purposes.

3,783,288

PULSED VACUUM ARC OPERATION OF FIELD EMISSION X-RAY TUBE WITHOUT ANODE MELTING

John P. Barbour, and Francis M. Charbonnier, both of McMinnville, Oreg., assignors to Field Emission Corporation, McMinnville, Oreg.

Filed June 26, 1972, Ser. No. 266,218
Int. Cl. H05g *1/32*
U.S. Cl. 250—414 **12 Claims**



A field emission x-ray apparatus and pulsed vacuum arc method of operation is described in which a plurality of extremely high voltage pulses of short duration and high repetition rate are applied between the anode and cathode of the x-ray tube to provide an electron discharge of low energy density below about 20 joules per square centimeter to prevent anode melting, which greatly increases the useful lifetime of such tube. For example, with a tube having a conical anode of tungsten having a surface area of 1.8 square centimeter, pulses of 350 kilovolts and 1,000 amperes with a width of 30 nanoseconds, a repetition rate of 1,000 pulses per second can be employed with an energy of 10.5 joules per pulse to provide the tube with a useful life in excess of 200,000 pulses. This increased tube life results from recognition and exploitation of the fact that, at higher pulse voltages, the anode temperature rise per pulse is reduced due to the fact that the electrons penetrate through a thicker surface layer of the anode. The high voltage, greater than about 250 kilovolts, of the pulses also give improved results in radiographic apparatus, such as is employed for x-raying the human chest, since the resulting film radiographs are of better contrast and contain more useful diagnostic information.

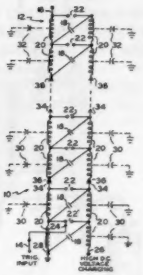
3,783,289

MARX SURGE PULSER HAVING STRAY CAPACITANCE WHICH IS HIGH FOR INPUT STAGES AND LOW FOR OUTPUT STAGES

Michael P. Hafner, McMinnville, Oreg., assignor to Field Emission Corporation, McMinnville, Oreg.

Filed June 14, 1972, Ser. No. 262,706
Int. Cl. H05g *1/24*
U.S. Cl. 250—417 **10 Claims**

A high voltage pulse generator of the Marx surge type is described in which the stray shunt capacitance to ground associated with the first several spark gaps of the input stages is of a higher value than the stray capacitance associated with the spark gaps of the output stages. The high stray capacitance of the input stages increases the amount of over-voltage transmitted to succeeding gaps when earlier gaps break down which enables a wider pressure range between the self fire and no fire pressures of the gas in the spark gaps. However, by providing a low stray capacitance for the output stages the pulser is still capable of producing high voltage output pulses of a narrow width and fast rise time. These different stray capacitances are provided by placing a grounded metal sleeve of smaller diameter than the pulser housing around the first few storage modules forming the input stages of the pulser, while leaving the last few storage modules forming its output stages free of any such sleeve. As a result, the storage modules of such output stages are spaced from the grounded metal



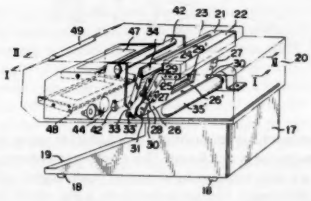
housing by a greater distance than the spacing between the input modules and such sleeve to provide a lower stray capacitance for the output modules than for the input modules.

3,783,290

INDICIA IDENTIFICATION SYSTEM

Motoharu Fujii; Isao Yamaguchi, both of Tokyo; Kimio Miyamoto, Yokohama; Masaru Yamaguchi, Tokyo, and Yozo Sano, Fujisawa, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Division of Ser. No. 735,823, June 10, 1968, abandoned. This application Mar. 1, 1971, Ser. No. 119,613
Claims priority, application Japan, June 12, 1967, 42/37469; Feb. 12, 1967, 42/50067
Int. Cl. G01d *7/06*
U.S. Cl. 250—456 **10 Claims**



The invention relates to an apparatus for identification of a concealed sign, such as a signature, on a card or the like and comprises a fluorescent member, a light source for stimulating the fluorescent member, a retaining member for holding the card carrying the concealed sign during the identification process and an infrared ray source. The apparatus of this invention may further include an optical system for directly comparing the visualize image of the concealed sign with a second sign and an instantly lighting circuit for the light source.

3,783,291

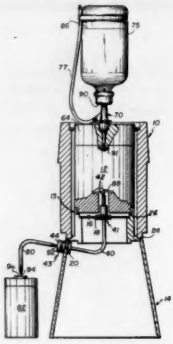
STERILE GENERATOR HOUSING AND SUPPORT

Thomas V. Czaplinski, North Brunswick; Gerald A. Bruno, Shrewsbury, and Thomas A. Haney, East Brunswick, all of N.J., assignors to E. R. Squibb & Sons, Inc., Princeton, N.J.

Continuation of Ser. No. 778,523, Nov. 25, 1968, abandoned. This application Jan. 3, 1972, Ser. No. 214,747
Int. Cl. G21h *5/02*
U.S. Cl. 250—434 **10 Claims**

Disclosed herein is a new apparatus for eluting sterile nonpyrogenic radioactive material safely, effectively and with a

minimum of radiation exposure to the operator. This unit comprises a support base that supports a housing for a sterile



generator, said support base having notched sleeves incorporated therein.

3,783,292

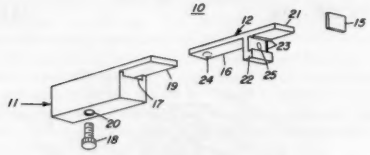
ALPHA PARTICLE DOSIMETER

Henry Ward Alter, Danville, and Daniel B. Lovett, Dublin, both of Calif., assignors to General Electric Company, San Jose, Calif.

Filed July 16, 1971, Ser. No. 163,150

Int. Cl. G01t 5/00, 5/10

U.S. Cl. 250—83 CD **11 Claims**



A dosimeter for recording alpha particles using track-registration material is disclosed. The dosimeter consists of a housing and an insert means holding the track-registration material. The dosimeter can be secured to a hat worn by a person working in an environment to be monitored, such as a uranium mine, which may contain quantities of radon gas and radon daughter products. The insert means is easily secured to and removed from the housing. The dosimeter is exceptionally small, light-weight and effective. The combined housing and insert means provides shielding for the film against unwanted radiation from deposited alpha-emitting particles and protects the film from physical contamination.

3,783,293

REGISTER CONTROL SYSTEMS

Daniel Gold, London, and Geoffrey David Clinton, Garston, both of England, assignors to Crosfield Electronics Limited, London, England

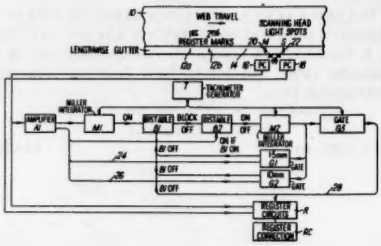
Continuation of Ser. No. 28,394, April 4, 1970, abandoned. This application Mar. 10, 1972, Ser. No. 233,506

Claims priority, application Great Britain, Apr. 17, 1969, 19741/69

Int. Cl. H01j 39/12

U.S. Cl. 250—548 **3 Claims**

In a method of register control two or more register marks, corresponding to different operations performed on the web, are printed on the web, one behind the other in a track extending in the direction of travel of the web, the marks being separated from one another by a predetermined distance when register is correct. A mark is recognised when a photocell signal indicates clear space in the track for a predetermined distance (longer than the nominal separation between the marks) followed by the leading mark. It may also



be required for recognition that the mark thickness is less than a given amount and that the mark is followed by at least a predetermined length of clear space. When a mark is recognition, a register comparison is made between the positions in the track of the leading mark and the next mark. The circuit discriminator against others print in the track and other register marks behind the two compared marks.

3,783,294

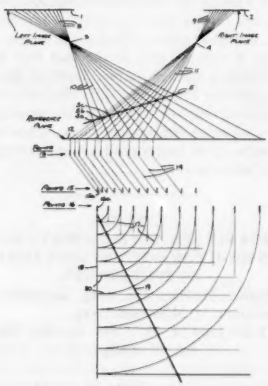
AUTOMATED STEREO-PHOTOGRAMMETRIC INSTRUMENT

Robert Koper, Heerbrugg, Switzerland, assignor to Wild Heerbrugg Limited, Heerbrugg, Switzerland

Filed May 19, 1972, Ser. No. 255,231

Int. Cl. G01c 11/12

U.S. Cl. 250—558 **20 Claims**



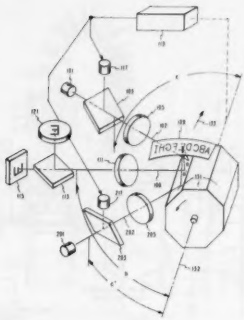
An automated photogrammetric instrument adapted to observe conjugate areas in a stereo-pair of photographs for the purpose of determining terrain elevation and for carrying out other measurements. In order to measure X-parallax, the instrument includes means to scan each of the photographs along a path in which X-parallax is present, but which is substantially free of Y-parallax and the effects of image rotation, thereby producing first and second video signals representative of the scanned paths in the pair of photographs. The first and second video signals are applied to a correlator to produce an output value reflecting the degree of differential X-parallax.

3,783,295

OPTICAL SCANNING SYSTEM

David Henry Casler, Rochester, Minn., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Sept. 30, 1971, Ser. No. 184,994
Int. Cl. H01j 39/12
U.S. Cl. 250—567 3 Claims



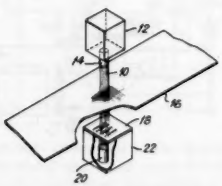
An optical character scanning system including synchronously scanned illumination and image paths. An operator viewing station is included in the image path and a strobing means is included in the illumination path to allow the operator to directly view a character being scanned by the scanning system. The planes defined by the illumination and image paths form unequal angles with the axis of a rotating polygon mirror used as a deflector. Two illumination sources are placed at equal angles to the mirror axis. Different wavelengths are used for machine scanning and operator viewing.

3,783,296

METHOD AND APPARATUS FOR DETECTING FLAWS IN A FABRIC WEB

Maurice E. Blevins, Spartanburg, S.C., assignor to Deering Milliken Research Corporation, Spartanburg, S.C.

Continuation of Ser. No. 18,196, March 10, 1970. This application Apr. 14, 1972, Ser. No. 244,200The portion of the term of this patent subsequent to Apr. 18, 1989, has been disclaimed.
Int. Cl. G01n 21/30
U.S. Cl. 250—550 2 Claims



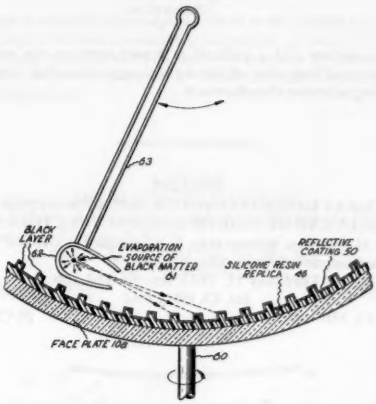
A method and apparatus to inspect and detect deviations in a repetitive mesh pattern from a predetermined norm for the particular mesh pattern wherein a highly collimated monochromatic light beam, such as a laser beam, is directed to pass through the mesh pattern, such as a woven or knitted fabric, is diffracted by the mesh pattern, and the diffracted laser pattern is directed onto a mask which is indicative of a norm for the mesh pattern. A light-detecting apparatus, such as a photocell, is placed beyond the mask and any deviation in the mesh of the fabric from a predetermined norm for that particular fabric results in a deviation of the diffracted pattern of the laser beam through the mask which affects, and is detected by, the photocell.

3,783,297

X-RAY IMAGE INTENSIFIER INPUT PHOSPHOR SCREEN AND METHOD OF MANUFACTURE THEREOF

John M. Houston, Schenectady, N.Y., assignor to General Electric Company, Schenectady, N.Y.

Filed May 17, 1972, Ser. No. 254,065
Int. Cl. H01j 1/62
U.S. Cl. 250—483 32 Claims



A waffle-like light-reflective surface on a substrate member has slightly protruding ribs of the waffle pattern coated with a light-absorbing material. The ribs absorb low-angle rearward traveling light photons generated in a transparent phosphor layer formed on the waffle surface and thereby reduce degradation of x-ray image resolution and contrast whereas the floor of the waffle pattern reflects the light photons traveling rearward more normal to the floor surface, back through the phosphor layer to the photocathode of the x-ray image intensifier tube. The method of fabricating the phosphor screen includes the intermediate step of forming a rubber replica of a metal master of the waffle surface from which a silicone resin replica is developed. The silicone resin replica is metal coated to provide the light reflective surface and the ribs are blackened to be light-absorbing.

3,783,298

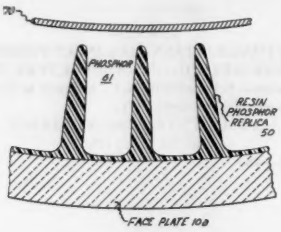
X-RAY IMAGE INTENSIFIER INPUT PHOSPHOR SCREEN AND METHOD OF MANUFACTURE THEREOF

John M. Houston, Schenectady, N.Y., assignor to General Electric Company, Schenectady, N.Y.

Filed May 17, 1972, Ser. No. 254,099
Int. Cl. H01j 1/62
U.S. Cl. 250—483 22 Claims

The surface of a waffle-like silicone resin and granular phosphor mixture substrate forms an array of cells for the support for the input transparent phosphor screen of an x-ray image intensifier tube. The solid projecting silicone resin-granular phosphor walls substantially reduce degradation of image resolution and contrast due to lateral scattering of light in the transparent phosphor and thereby permits use of a thicker phosphor screen for higher x-ray absorption, and, or higher image resolution. The method of fabricating the phosphor screen includes the intermediate step of forming a

rubber replica of a metal master of the waffle surface. The rubber replica is coated with the granular phosphor-silicone



resin mixture and a vacuum is drawn between the rubber replica and face plate of the x-ray image intensifier tube for causing adhesion therebetween.

3,783,299

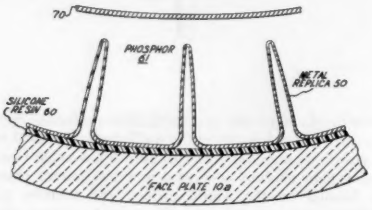
X-RAY IMAGE INTENSIFIER INPUT PHOSPHOR SCREEN AND METHOD OF MANUFACTURE THEREOF

John M. Houston, Schenectady, N.Y., assignor to General Electric Company, Schenectady, N.Y.

Filed May 17, 1972, Ser. No. 254,100

Int. Cl. H01j 1/62

U.S. Cl. 250—483 **20 Claims**



The surface of a waffle-like metal substrate forms an array of cells for the support for the input phosphor screen of an x-ray image intensifier tube. The hollow projecting walls of the metal surface substantially reduce degradation of image resolution due to lateral scattering of light in the phosphor and thereby permits use of a thicker phosphor screen for higher x-ray absorption and, or higher image resolution. The method of fabricating the phosphor screen includes the intermediate steps of forming rubber and plastic replicas of a metal master of the waffle surface. The plastic replicas are nickel plated to form low cost metal replicas with the plastic being dissolved whereby the projecting walls are hollow.

3,783,300

AUTOMATIC PHOTOMULTIPLIER TUBE VOLTAGE CONTROLLER

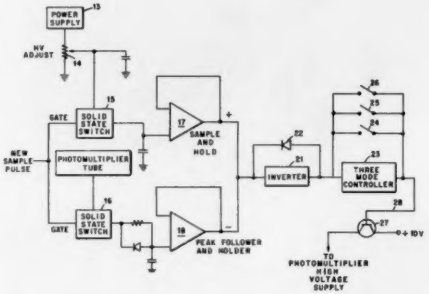
Wayne F. Johnson, Loudon, Tenn., assignor to The United States of America as represented by the United States Atomic Energy Commission, Washington, D.C.

Filed Sept. 18, 1972, Ser. No. 289,906

Int. Cl. G01n 21/26

U.S. Cl. 250—564 **3 Claims**

The repeating chain of pulses of a GeMSAEC analytical photometer is referenced to a contant amplitude water blank pulse that is sampled with each revolution of the rotor. A feedback circuit samples the amplitude of the water blank cuvet signal by means of a fast-acting solid state switch. It assures that the water blank signal amplitude remains constant by controlling the photomultiplier tube high voltage supply following comparison of the water blank transmission signal with a very well regulated reference voltage. Thus, in the



event of photomultiplier gain change or power supply drift during operation, automatic restoration of the photometer data transmission signals to their correct values will occur.

3,783,301

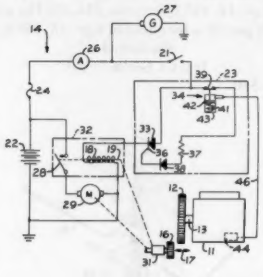
LOCKOUT CIRCUIT FOR ENGINE STARTER SYSTEM

Robert L. Nieukirk, Washington, Ill., assignor to Caterpillar Tractor Co., Peoria, Ill.

Filed June 8, 1972, Ser. No. 261,080

Int. Cl. F02n 11/00

U.S. Cl. 290—37 **3 Claims**



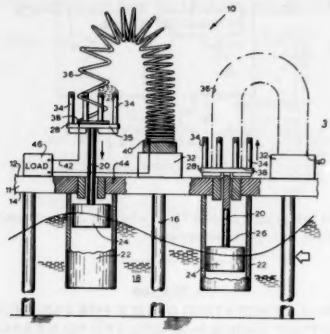
The risk of damage to starter mechanism for cranking an engine is reduced by a simple and reliable lockout circuit which prevents re-energization of the starter system from inadvertent closing of the starter switch after the engine is running. The lockout circuit detects when the engine has started by sensing engine oil pressure but does not deactivate the starter system until such time as the operator releases the starter switch. Thereafter the starter system cannot be re-energized until after the engine has been shutdown. All electrical elements of the lockout circuit are de-energized during running of the engine after the starter switch is released.

3,783,302

APPARATUS AND METHOD FOR CONVERTING WAVE ENERGY INTO ELECTRICAL ENERGY

David D. Woodbridge, P.O. Box 1425, Melbourne, Fla.

Filed Apr. 6, 1972, Ser. No. 241,702
Int. Cl. F03b 13/12
U.S. Cl. 290—42 14 Claims



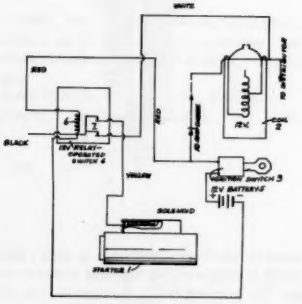
Apparatus including a coil supported on one end by a platform which reciprocates in response to wave action on a body of water. A magnetic field is provided through the coil so that an electromotive force is generated therein due to motion of the coil in the magnetic field.

3,783,303

ANTI-THEFT DEVICE FOR MOTOR VEHICLE

John L. Johnson, Jr., Dallas, Tex., assignor to The Raymond Lee Organization, Inc., New York, N.Y.

Filed June 14, 1972, Ser. No. 262,776
Int. Cl. B62d 45/00
U.S. Cl. 307—10 AT 1 Claim



A circuit component connected in the ignition system of a motor vehicle selectively opens and closes the circuit of the ignition system thereby controlling the starting of the engine of the vehicle.

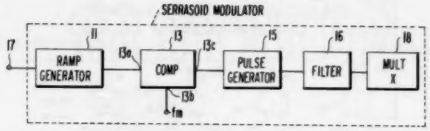
3,783,304

CONSTANT PULSE WIDTH GENERATOR

Haydn Milton Fox, Delran, N.J., assignor to RCA Corporation, New York, N.Y.

Filed Dec. 22, 1972, Ser. No. 317,741
Int. Cl. H03k 3/00, 3/64
U.S. Cl. 307—106 4 Claims

A generator useful as the output pulse generator in a serrasoid modulator provides a constant pulse width output regardless of input pulse amplitude or width variations. The pulse generator includes a differential amplifier wherein input signals through a first input coupling circuit to one terminal of the differential amplifier are integrated and the input signals



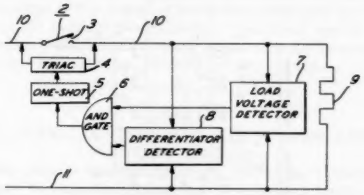
through a second input coupling circuit to the second terminal are coupled without appreciable integration. A fixed D.C. offset voltage between the two inputs is achieved by a constant current source coupled to a resistor in the second input coupling circuit.

3,783,305

ARC ELIMINATION CIRCUIT

Peter Lefferts, Hopewell, N.J., assignor to Heinemann Electric Company, Trenton, N.J.

Filed Aug. 18, 1972, Ser. No. 281,968
Int. Cl. H01h 9/30
U.S. Cl. 307—136 9 Claims



A circuit arrangement for eliminating arcs formed across a set of contacts on the opening or closing thereof comprising a thyristor connected across the contacts to be protected. The control electrode of the thyristor is coupled to a control circuit which includes a logic circuit for generating a trigger pulse upon the simultaneous occurrence of a plurality of contact arc-indicative conditions. The control circuit also includes sensing circuits for generating control signals upon the occurrence of preselected arc-indicative conditions, such as preselected contact or load voltages and contact or load transient voltages having a preselected rise time or frequency characteristics.

3,783,306

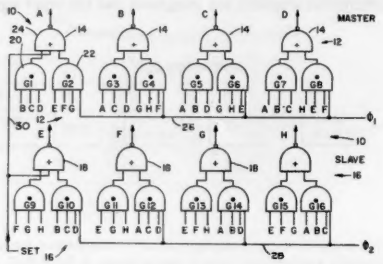
LOW POWER RING COUNTER

Kurt Hoffmann, Sunnyvale, Calif., assignor to American Micro-Systems, Inc., Santa Clara, Calif.

Filed Apr. 5, 1972, Ser. No. 241,275
Int. Cl. H03k 21/00, 19/08
U.S. Cl. 307—223 C 5 Claims

A ring counter that is operable by a relatively low power level comprises master and slave flip-flop sections having n stages connected in parallel to alternating clock means. Each stage has a series of AND-NOR gates including one AND-NOR gate used as a reset and connected to the other parts of

the section. The alternating clocks for the master and slave sections are applied to advance the counter by shifting the direct current path from stage to stage. Each stage is self gated so that power is consumed only when that stage or flip-flop is being enabled.



3,783,307

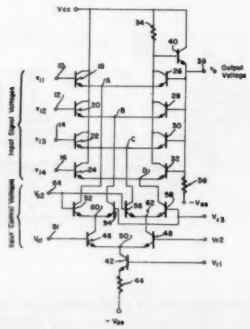
ANALOG TRANSMISSION GATE

David R. Breuer, Malibu, Calif., assignor to TRW Inc., Redondo Beach, Calif.

Filed Jan. 3, 1972, Ser. No. 214,903

Int. Cl. H03k *17/30, 17/60*

U.S. Cl. 307—243 **8 Claims**



A transistor switching network, responding to a logic input, switches current selectively into one of a number of nodes, each node connecting a pair of bipolar transistors coupled differentially in a unity gain amplifier circuit. From a number of analog input signals applied to the differentially connected transistor pairs, only the one coupled to the selected node will produce an output from the voltage follower circuit. Conversely, a single analog input signal may be gated selectively to any one of a number of output terminals.

3,783,308

FLIP-FLOP ELEMENT

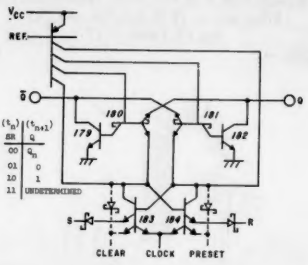
Clark R. Williams, Dallas, Tex., assignor to Texas Instruments Incorporated, Dallas, Tex.

Filed June 19, 1972, Ser. No. 264,216

Int. Cl. H03k *3/286*

U.S. Cl. 307—291 **7 Claims**

Flip-flop circuits are defined by bipolar elements including multiple emitter transistors, Schottky diodes and multiple emitter Schottky transistors configured to operate with a supply voltage of only 1 volt. The circuits are well adapted for use in devices such as electronic wrist watches when implemented in integrated circuit form wherein current sources are used in place of high value resistors.



3,783,309

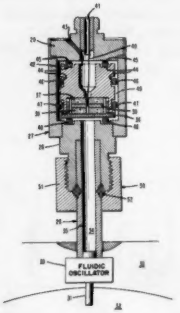
SIGNAL GENERATING DEVICE FOR USE WITH A STRUCTURE WHICH IS SUBJECTED TO A RANGE OF VIBRATIONS

Vernon F. Alibert, Chester Hgts., and Thomas H. Carey, Chester, both of Pa., assignors to Columbia Research Laboratories, Inc., Woodlyn, Pa.

Filed Aug. 7, 1972, Ser. No. 278,489

Int. Cl. H04r *17/00*

U.S. Cl. 310—8.7 **7 Claims**



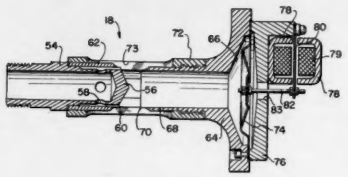
The present invention employs a piezo-electric crystal means which is supported by nonrigid material within a housing device. The housing device is adapted to be rigidly held by a vibrating body. The piezo-electric crystal means is coupled to a source of pressure signals which vary in frequency in response to temperature variations and said crystal means is further coupled to an electronic network to provide signals thereto which are converted into pulses whose repetition rate is commensurate with the frequency of said pressure signals. The vibration experience to which the housing and therefore the piezo-electric crystal means is subjected does not cause the piezo-electric crystal means to generate high amplitude electrical signals (noise) because the energy of the vibrations is substantially absorbed by the non-rigid material. In addition the electronic network provides a flat response over a dynamic range that includes the pressure signals generated by the temperatures of the device being monitored. Accordingly, the signals from the pressure source can be readily detected and therefore are readily usable for their intended purpose.

3,783,310

AIR-DRIVEN GENERATOR

Carl J. Campagnuolo, Potomac; Clayton D. McKindra, Hyattsville; Clinton J. Sewell, Silver Spring; Fernando Villarroel, Bowie, and Lionel L. Woolston, Silver Spring, all of Md., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Division of Ser. No. 44,679, June 9, 1970, Pat. No. 3,712,170.
This application June 23, 1972, Ser. No. 265,935
Int. Cl. H02k *35/00*
U.S. Cl. 310—15 6 Claims



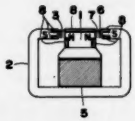
A system for firing aircraft rockets including a fluidic generator exposed to the airstream passing the launching aircraft in flight for generating the electrical power necessary to operate the firing circuit. The fluidic generator, produces a voltage output when a predetermined minimum air speed is achieved to charge capacitors in the firing circuit. Silicon controlled rectifiers are shunted across the capacitors to immediately discharge them when the aircraft decelerates below the predetermined minimum air speed.

3,783,311

MAGNETIC DEVICE FOR USE IN ACOUSTIC APPARATUS

Tadao Sato, Asaka, and Toshio Ebihara, Ichikawa, both of Japan, assignors to Coral Audio Corporation, Kawaguchi City and Shinko Magnet Kabushiki Kaisha, Narashino City, both of Japan

Filed Dec. 13, 1971, Ser. No. 207,081
Claims priority, application Japan, Dec. 19, 1970, 45/114666
Int. Cl. H02k *33/18*
U.S. Cl. 310—27 1 Claim



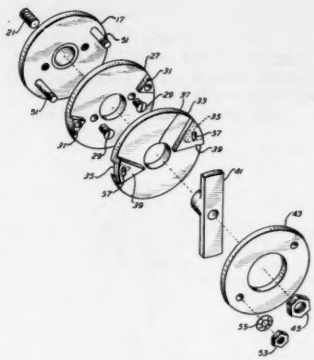
This invention relates to a magnetic device comprising a magnet, a center pole secured to an upper surface of said magnet, a yoke enclosing said magnet and said center pole such that a gap is formed between said yoke and said center pole, a voice coil wound on a bobbin loosely received in said gap, and a metallic member which permits the lines of magnetic force to move substantially in one direction only. Said magnetic member is mounted either on the center pole or the yoke in the vicinity of the surface of the north pole or south pole.

3,783,312

VISCOUS DECELERATION DAMPED INCREMENTAL POSITION MOTOR

Arnold Schindel, Fairlawn, and David Wojtowicz, South Plainfield, both of N.J., assignors to The Singer Company, Little Falls, N.J.

Filed Jan. 15, 1973, Ser. No. 323,843
Int. Cl. H02k *7/02*
U.S. Cl. 310—36 10 Claims



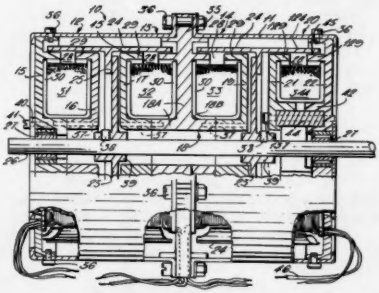
Damping apparatus for use in a dual position stepper motor is shown. An arm on the motor shaft rotates therewith in a recess formed in a friction plate held for limited movement between two surfaces. Damping is obtained by the arm striking an edge of the recess of the friction plate and moving it slightly to absorb the momentum of the motor and its load. Means are provided to adjust the pressure on the friction plate to allow it to be effective for different motor loads.

3,783,313

ELECTRICAL STEPPING MOTORS HAVING LOW INERTIA ROTORS

Radhey Mohan Mathur, Winnipeg, Manitoba, Canada, assignor to Canadian Patents and Development Limited, Ottawa, Ontario, Canada

Filed June 29, 1972, Ser. No. 267,587
Int. Cl. H02k *37/00*
U.S. Cl. 310—49 8 Claims



The stepping rate of a multi-phase electrical stepping motor is increased by pairing stator sections with a rotor disc carrying two sets of axially extending rotor poles. Embodiments having four sections and a rotor of two discs, carrying segmental strip rotor poles, has stator poles of segmental opposed form aligned across an annular ring slot opening in the outer torus wall. Another embodiment has an annular pole slot in

the torus side and angularly staggered salient poles, cooperating with a ring rotor of crenulate form with arcuate segmental pole faces joined by oblique bridge portions. All sections may be active sections, or an end section may have permanent magnet excitation of stator poles which number is the count of all active poles, and the rotor pole set associated has a like number of poles, to lock the rotor in each step position; a winding energized by low DC current is poled to cancel holding flux, a magnetic shunt being provided to avoid magnet demagnetization.

3,783,314

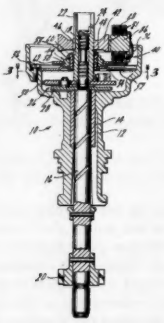
SIGNAL GENERATING MECHANISM

Charles C. Kostan, Detroit, Mich., assignor to The Ford Motor Company, Dearborn, Mich.

Filed Dec. 20, 1972, Ser. No. 316,945

Int. Cl. H02k *11/00*

U.S. Cl. 310—70 **5 Claims**



A signal generating mechanism is disclosed for producing an electrical signal having a frequency proportional to the angular velocity of a rotating shaft. The signal generating mechanism may be used in the distributor for a breakerless ignition system for a multi-cylinder internal combustion engine, in which case the frequency of the alternating signal is equal to the rate at which ignition sparks are to be generated. The signal generating mechanism includes a lower plate and bushing through which the rotating shaft passes. A non-adjustable stator assembly is formed by a hub positioned around the bushing, the hub having an upper plate attached to it on which is affixed a permanent magnet. A stator is positioned on the permanent magnet and has an extending pole-piece that passes through an electrical pickup coil. An armature, or rotor, is formed by a toothed-wheel that is affixed to the rotating shaft. The teeth of the toothed-wheel come into and go out of alignment with the portion of the stator pole-piece that extends through the electrical coil.

3,783,315

FLYWHEEL MAGNETO HAVING TRIGGER GENERATOR FOR IGNITING ENGINE

Osamu Takahashi, Hitachi, and Nobuhico Ogasawala, Mito, both of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

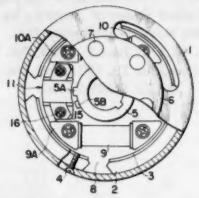
Filed Nov. 18, 1971, Ser. No. 199,981

Claims priority, application Japan, Nov. 25, 1970, 45/104277

Int. Cl. H02k *7/02*

U.S. Cl. 310—74 **7 Claims**

A trigger generator is incorporated in a flywheel magneto which is directly coupled to the crankshaft of an engine to be driven thereby. A plurality of rotary magnetic poles are mounted on the body portion of the flywheel to constitute a rotor, and the iron core of the trigger generator is disposed in the space defined between the magnetic poles and the hub portion of the flywheel so as to establish a magnetic path which passes through the iron core and the hub and body portions of the flywheel. The trigger generator generates an output in response to the rotation of the engine without producing any noise voltage. Ignition can be reliably attained during each rotation and a high output can be obtained even when the engine is rotating at a low speed.



3,783,316

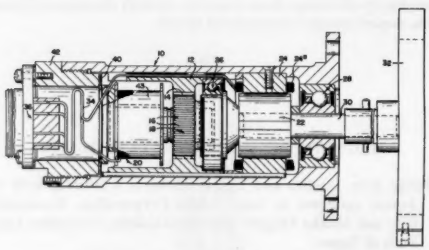
STABILIZED ROTOR CONSTRUCTION FOR WHEEL SPEED TRANSDUCER

Basil M. Madigan, Wadsworth, Ohio, assignor to The Goodyear Tire and Rubber Company, Akron, Ohio

Filed July 25, 1972, Ser. No. 274,860

Int. Cl. H02k *5/16*

U.S. Cl. 310—90 **7 Claims**



Disclosed is a new bearing design adaptable for use between rotatably moving parts having tolerances therebetween which are subject to change due to temperature or other variations. A stationary assembly has a bearing race fixedly attached about the inner circumference thereof. A rotatable member, received within the stationary member, has a race about the outer circumference thereof substantially concentrically aligned with the fixed race. Balls are interposed between the two bearings. A spring washer operatively engages the rotatable member so as to maintain a consistent bearing engagement between the two races and the balls regardless of temperature variations or force fluctuations.

3,783,317

DYNAMOELECTRIC MACHINE ROTOR

Hollis D. Sisk, Chesterfield, Mo., assignor to Wagner Electric Corporation, Newark, N.J.

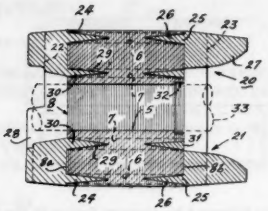
Filed Nov. 22, 1972, Ser. No. 308,707

Int. Cl. H02k *3/06*

U.S. Cl. 310—212 **9 Claims**

A squirrel-cage rotor for an electric motor is provided with a lamination stack having the usual integrally cast windings and conductively connected opposed end rings, and cold

strength bars are also integrally cast in said lamination stack respectively having opposed ends adjacent to said end rings

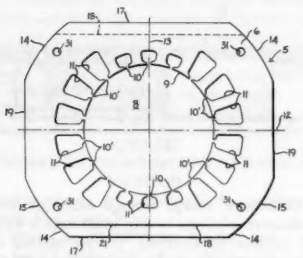


with at least one of said opposed ends electrically disassociated from its adjacent end ring.

3,783,318
LAMINATED STATOR CORE FOR DYNAMOELECTRIC MACHINES

John C. Widstrand, Wausau, Wis., assignor to Marathon Electric Manufacturing Corporation, Wausau, Wis.

Filed Oct. 6, 1972, Ser. No. 295,706
Int. Cl. H02k *1/16*
U.S. Cl. 310—216 **6 Claims**



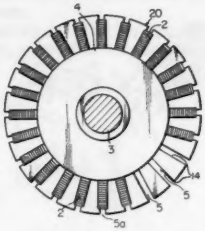
A stator core for an induction-run motor comprises identical laminations. Each has a circular inner edge to which winding slots open. The outer edge is asymmetrical, defined by arcuate portions curved on a uniform radius concentric to the inner edge, peripherally alternating with straight portions that are parallel to mutually perpendicular lines through the center of the inner edge. Along the stator the laminations have different angular orientations, but orientations differ by uniform angular increments and preferably vary in a regular sequence along the core; hence the core as a whole is symmetrical.

3,783,319
LAMINATED ROTOR TOOTH ASSEMBLY FOR AN ELECTRIC PULSE MOTOR

Sakae Yamamura, Tokyo, and Seiuemon Inaba, Kawasaki, both of Japan, assignors to Fujitsu Limited, Kawasaki-shi and Fujitsu Fanuc Limited, Chiyoda-ku, Tokyo, both of Japan

Filed Aug. 21, 1972, Ser. No. 282,021
Claims priority, application Japan, Aug. 24, 1971, 46/76000
Int. Cl. H02k *1/22*
U.S. Cl. 310—268 **10 Claims**

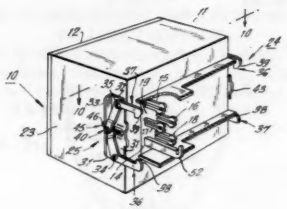
An electric pulse motor having a rotatably supported rotor including a plurality of equiangularly arranged rotor teeth carried by a support element and a stator assembly including a number of stator elements stationarily arranged around the rotor. The stator teeth of the stator assembly project toward one another across an air gap and both face the rotor teeth between them. Each of said plurality of rotor teeth is a laminated element made by stacking a plurality of laminations in the radial direction of the rotor.



3,783,320
CLAMPING MEANS FOR MECHANICAL SECUREMENT OF ENCLOSURES TO BUS DUCT

Ralph C. Clement, Bellefontaine, Ohio, assignor to I-T-E Imperial Corporation, Philadelphia, Pa.

Filed Dec. 15, 1972, Ser. No. 315,553
Int. Cl. H02b *1/04*
U.S. Cl. 317—99 **15 Claims**



Each end of a bus duct plug is provided with a clamping assembly to mechanically secure the plug to a bus duct housing. Each clamping assembly includes a pair of pivoted L-shaped crank members having hooks at one end thereof and being joined at their other ends to a connecting member that is mounted for guided linear movement. A single adjusting screw in threaded engagement with the connecting member moves the latter, with such movement being effective to simultaneously pivot both crank members and thereby selectively move the hooks into and out of clamping engagement with the bus duct housing.

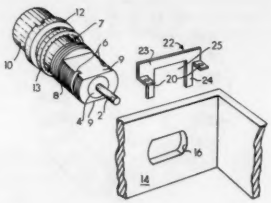
3,783,321
COAXIAL CONNECTOR

William L. Patterson, Berlin, Mass., assignor to Adams-Russell Co., Inc., Waltham, Mass.

Filed Mar. 23, 1972, Ser. No. 237,326
Int. Cl. H02b *1/02*
U.S. Cl. 317—101 R **5 Claims**

A coaxial connector for making an electrical connection through the wall of an enclosing box to a printed circuit board. The connector has one end formed in conventional fashion to mate with a cable connector, while the other end which extends through a clearance hole in the enclosing wall, has an outer cylindrical conductor flatted on two sides and a central conductor embedded in insulating material and extending beyond the end of the outer conductor. The slots in the outer conductor interconnect the flatted portions and a bracket has

a pair of tabs extending out from a U-shaped portion, the U-shaped portion fitting through the slots to retain the connector within the enclosing wall, the tabs supporting the printed cir-



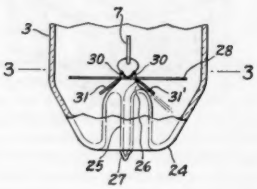
cuit board and providing an electrical connection to the ground plane thereon. A retaining ring threads on the opposite end to fasten the conductors from outside the wall.

3,783,322

ELECTRIC LAMP HAVING PHOSPHOR COATING AND HEAT DEFLECTOR

John W. Anthony, Pepper Pike, Ohio, assignor to General Electric Company, Schenectady, N.Y.

Filed Dec. 14, 1972, Ser. No. 314,955
Int. Cl. H01j *61/52*
U.S. Cl. 313—42 **5 Claims**



In electric lamps which contain a gas filling at appreciable pressure and which have a phosphor coated on the inside of the envelope, it is necessary to guard against blowing phosphor off the wall by the jet of gas issuing from the exhaust tube at gas fill. Also in high intensity lamps, a heat deflector in the neck may be desirable to prevent overheating of the base. A heat deflector is provided in the form of a slotted disc which straddles the press and has tabs bent out therefrom at an acute angle. The tabs overlie the exhaust tube blow-out aperture in the stem and deflect the gas jet to prevent blowing phosphor off the wall at gas fill.

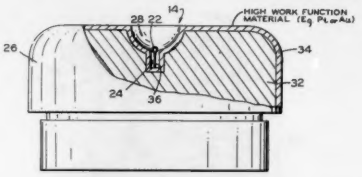
3,783,323

X-RAY TUBE HAVING FOCUSING CUP WITH NON-EMITTING COATING

Zed J. Atlee, Oak Brook, and Roy F. Kasten, Jr., Elmhurst, both of Ill., assignors to Picker Corporation, Cleveland, Ohio

Filed Aug. 30, 1972, Ser. No. 284,735
Int. Cl. H01j *35/06*
U.S. Cl. 313—57 **7 Claims**

An x-ray tube is described including a focusing cup electrode coated with a high work function material, such as platinum or gold, to prevent the field emission of electrons from such cup. The method of applying the non-emitting coating is preferably sputtering or ion plating, but may also be



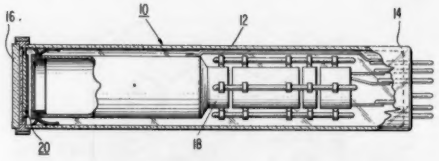
electroplating followed by vacuum fusion in the case of gold or other low melting point metals.

3,783,324

PHOTOSENSITIVE CHARGE STORAGE ELECTRODE HAVING A SELECTIVELY CONDUCTING PROTECTIVE LAYER OF MATCHING VALENCE BAND ON ITS SURFACE

Christopher Roman Wronski; Woongsoon Michael Yim, and Joseph Dresner, all of Princeton, N.J., assignors to RCA Corporation, New York, N.Y.

Filed Sept. 11, 1972, Ser. No. 287,859
Int. Cl. H01j *31/28*
U.S. Cl. 313—65 A **4 Claims**



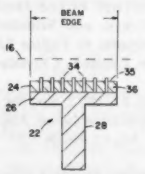
A photosensitive charge storage electrode comprises a photoconductive substrate having a bulk region with a surface region of reduced conductivity. On the surface region is a selectively insulating layer of a composition such that the top of the valence band of the layer is essentially at the same energy level as the top of the valence band in the bulk region of the photoconductive substrate.

3,783,325

FIELD EFFECT ELECTRON GUN HAVING AT LEAST A MILLION EMITTING FIBERS PER SQUARE CENTIMETER

Joe Shelton, Huntsville, Ala., assignor to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed Dec. 21, 1971, Ser. No. 210,452
Int. Cl. H01j *1/20, 19/24*
U.S. Cl. 313—336 **1 Claim**



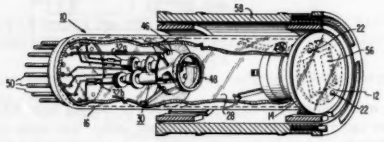
An electron gun uses a field effect emitter in a vacuum tube, providing the advantages of cold cathode emission at atmospheric temperature in addition to a simplified control

system. Temperature independent emission is achieved by using an oxide-metal composite emitter for releasing electrons. The anode and emitter can be shaped to produce a desirable electric field and current path for special electron tubes.

3,783,326
MAGNETICALLY-FOCUSSED CATHODE-RAY TUBE COMPRISING A TILTED AND SKEWED OFF-AXIS ELECTRON GUN

Eduard Luedicke, Neshanic, N.J., assignor to RCA Corporation, New York, N.Y.

Filed Sept. 18, 1972, Ser. No. 289,780
Int. Cl. H01j *29/46*
U.S. Cl. 313—83 **7 Claims**

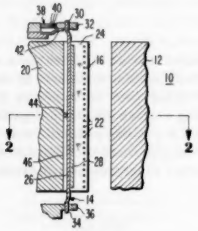


The tube comprises an evacuated envelope having a magnetic focus axis and an electron gun spaced from the focus axis and having a gun axis along the general direction of the electron beam in the gun. The electron gun is oriented at an angle with respect to the focus axis, the angle being the sum of a component tilt angle and a component skew angle.

3,783,327
FILAMENTARY CATHODE MOUNT AND MOUNTING METHOD

Benjamin Baker Adams, Jr., Landisville, Pa., assignor to RCA Corporation, New York, N.Y.

Filed June 30, 1972, Ser. No. 267,906
Int. Cl. H01j *1/88, 19/42*; H01k *1/18*
U.S. Cl. 313—272 **10 Claims**

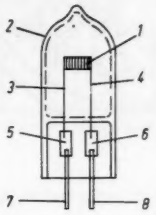


A mount comprising a filamentary cathode held in longitudinal tension between two suspension members movable one with respect to the other; a fixed electrically-insulating support in contact with a surface of the cathode intermediate the ends thereof; and means for displacing the longitudinal pulling plane relative to the center-of-gravity of the cathode, whereby the cathode surface is forced against the support. Also included is a method of mounting a filamentary cathode in the mount.

3,783,328
HALOGEN INCANDESCENT LAMP

Gerhard M. Neumann, Munich, Germany, assignor to Patent-Treuhand-Gesellschaft fur elektrische Gluhlampen mbH, Munich, Germany

Filed July 11, 1972, Ser. No. 270,730
Claims priority, application Germany, Aug. 10, 1971, P 21 40 087.3
Int. Cl. H01k *1/50*
U.S. Cl. 313—222 **9 Claims**



Halogen incandescent lamps containing a tungsten filament and an inert fill gas. The lamps also contain an equimolar quantity of oxygen and fluorine in the envelope together with the inert gas. Preferably the amount of each of the oxygen and fluorine is between about 0.1 and 5 torr.

3,783,329
TUBULAR INCANDESCENT LAMP HAVING IMPROVED FILAMENT SUPPORT

Frederick J. McNeill, Londonderry, N.H.; Joseph S. Kulik, Jr., Amesbury, Mass., and David L. Smith, Sr., Nashua, N.H., assignors to GTE Sylvania Incorporated, Danvers, Mass.

Filed Nov. 2, 1972, Ser. No. 303,035
Int. Cl. H01j *1/96, 19/50*
U.S. Cl. 313—274 **3 Claims**

A tubular, double ended electric incandescent lamp has one or more improved support members intermediate the ends of a coiled lamp filament to support the filament from the lamp envelope walls and to maintain the filament at about the axis of the lamp envelope. Each support member comprises a plurality of intertwisted wires, each of which partially encircles the filament. The ends of the intertwisted wires bear against the lamp envelope radially.

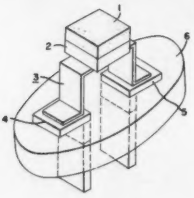
3,783,330
DIRECT HEATED CATHODE

Hisao Nakanishi; Takushi Ushiro, and Kinjiro Sano, all of Kyoto, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Mar. 28, 1972, Ser. No. 238,894
Claims priority, application Japan, Apr. 2, 1971, 46/20127
Int. Cl. H01j *1/14, 1/20, 19/14*
U.S. Cl. 313—310 **3 Claims**

A direct heating cathode for electronic tube application having excellent electrical characteristics, e.g., thermionic emission characteristics and cut-off characteristics, and excellent mechanical characteristics, e.g., thermal strength, impact strength, is provided which comprises a heating element having a cathode contact surface and having side wall portions

supporting said contact surface, a cathode base plate contacting said heating element contact surface, a thermionic emitting layer for emitting electrons by thermal energy being in contact with said cathode base plate, wherein said heating



element is formed from a metallic material having an electric resistance of greater than 110$\mu\Omega$-cm at 800°C., a tensile strength of greater than 15 kg/mm^2, a thickness of 20 – 50μ and a width of 0.5 – 1.5 mm.

3,783,331

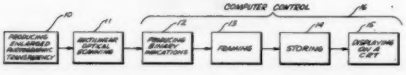
METHOD FOR GENERATING INFORMATION TO CONTROL THE SCANNING BEAM OF A DISPLAY DEVICE

John C. Darnall, Van Nuys, Calif., assignor to The Times Mirror Company, Los Angeles, Calif.

Filed Mar. 17, 1970, Ser. No. 20,320

Int. Cl. H01j *29/70*

U.S. Cl. 315—18 **10 Claims**



An enlarged photographic transparency of a print character to be displayed on a cathode ray tube is placed between a directional light source and a directional light detector aligned with the light source. Relative motion is introduced between the transparency and the aligned source and detector to form a vertical rectilinear scanning pattern across the transparency. Each subject print character is placed on the transparency between two reference characters that are in predetermined spatial relationship to the boundaries of the em square of the subject character. A series of binary indications corresponding to the elemental areas of the scanning pattern is produced from the response of the detector and stored on a first storage medium. Then, the indications representing the reference characters are sensed. From the indications representing the reference characters, the indications that represent the boundaries of the em squares of the subject characters are determined. Finally, the indications within the boundaries of the em squares of the subject characters are selectively transferred to a second storage medium. The subject characters are retrieved from the second storage medium as required to control the electron beam of the cathode ray tube.

3,783,332

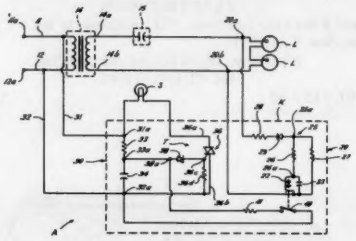
VAPOR LAMP STANDBY APPARATUS

John D. Peterson, and Walter E. Bates, both of Seabrook, Tex., assignors to W. E. Bates Engineering Co., Seabrook, Tex.

Filed June 5, 1972, Ser. No. 259,553

Int. Cl. H05b *41/46, 37/04, 37/03*

U.S. Cl. 315—91 **9 Claims**



A new and improved apparatus for providing light when a vapor lamp, such as a mercury vapor lamp, has been extinguished because of a temporary failure in the electrical power supply of such lamp.

3,783,333

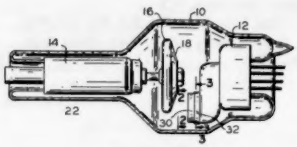
X-RAY TUBE WITH IMPROVED CONTROL ELECTRODE ARRANGEMENT

Zed J. Atlee, Oak Brook, Ill., assignor to Picker Corporation, Cleveland, Ohio

Filed Feb. 24, 1972, Ser. No. 229,136

Int. Cl. H01j *29/52*

U.S. Cl. 315—30 **8 Claims**



Electron emissive device such as an x-ray tube having a cathode for generating electrons and an anode for receiving the same is provided with an auxiliary electrode insulated from the focusing cup electrode and positioned behind the cathode filament. A positive potential may be applied to such auxiliary electrode relative to the filament so that such auxiliary electrode attract electrons and prevent their flow to the anode.

3,783,334

CATHODE RAY TUBE DISPLAY SYSTEMS

William George Gore, Newbury, and Roy Percival Parker, Leatherhead, both of England, assignors to National Research Development Corporation, London, England

Filed July 16, 1970, Ser. No. 55,495

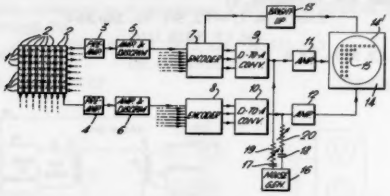
Claims priority, application Great Britain, July 23, 1969, 37,138/69

Int. Cl. H01j *29/80*

U.S. Cl. 315—18 **7 Claims**

A display system, having particular application in gamma cameras, in which items of information are represented by

bright spots on the screen of a cathode ray tube. The display is basically in the form of a digital array of positions corresponding to different kinds of item, but is made easier to interpret by spreading out the spots for each position of the array.



3,783,335

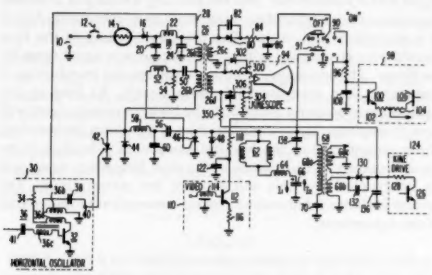
INSTANT-ON CIRCUIT FOR A TELEVISION RECEIVER OFFERING INDEPENDENT FILAMENT VOLTAGE CONTROL

Robert Joseph Gries, Marion, Ind., assignor to RCA Corporation, New York, N.Y.

Filed July 3, 1972, Ser. No. 268,786

Int. Cl. H01j *29/70*

U.S. Cl. 315—30 **6 Claims**



The instant-on circuit cooperates with a horizontal deflection system of the type utilizing two bidirectionally conductive switching means which serve respectively as trace and commutating switches. When the on-off control for the television receiver is turned to its "ON" position, the two switches cooperate to provide those direct potentials needed for image or reproduction on the face of a picture tube kinescope. When the control is turned to its "OFF" position, on the other hand, the trace switch is inactivated, but the commutating switch continues to operate to provide a reduced filament voltage for the picture tube. A resistor-rectifier combination is included in series with the filament of the picture tube to provide a means by which the amplitude and ratio of the voltages applied to the filament between the "ON" and "OFF" conditions of the receiver can be controlled.

3,783,336

AUTOMATIC PHOTOFLASH DEVICES

Zoltan Vital, Brussels, and Jean Orban, Clabecq, both of Belgium, assignors to Ponder & Best, Inc., Los Angeles, Calif.

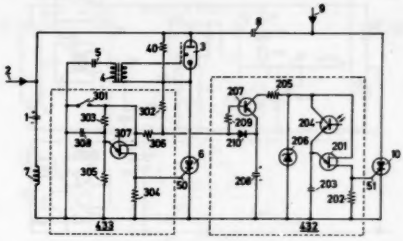
Continuation-in-part of Ser. No. 799,554, Feb. 13, 1969, abandoned. This application Aug. 23, 1971, Ser. No. 174,096

Claims priority, application Belgium, Aug. 24, 1970, 93116; Mar. 8, 1971, 100618; Apr. 9, 1971, 102057; June 11, 1971, 104488; Sept. 23, 1970, 94290; Feb. 13, 1968, 54471; Nov. 21, 1968, 66425; Dec. 27, 1968, 68017; Jan. 20, 1969, 68982

Int. Cl. H05b *37/00, 37/02*

U.S. Cl. 315—159 **32 Claims**

Automatic flash limiting devices for use in electronic photoflashes and including means for more rapidly and accurately terminating a light flash and/or blocking discharge of the photoflash energy storage capacitor after termination of such a light flash.



3,783,337

FLASHING LAMP CIRCUITS

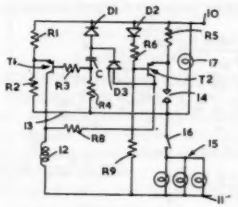
Robert Hulme Brown, Kingston-Upon-Thames, England, assignor to C.A.V. Limited, Birmingham, England

Filed July 14, 1971, Ser. No. 271,654

Claims priority, application Great Britain, July 17, 1971, 33,692/71

Int. Cl. H05b *37/03*

U.S. Cl. 315—200 A **5 Claims**



A flashing lamp circuit includes a capacitor which is charged by a source of d.c. supply when the circuit is energised and switch means including a relay the operating coil of which is energised when the voltage across the capacitor attains a predetermined voltage. In addition there is provided a current sensing means including a resistor and a transistor for sensing the current flow through the lamp or lamps. The current sensing means is arranged to maintain the relay coil energised in the event of failure of the or one or more of the lamps.

3,783,338

ELECTRONIC FLASH LIGHTING EQUIPMENT

Kenneth Bowen, London, England, assignor to Bowens Sales & Service Limited, London, England

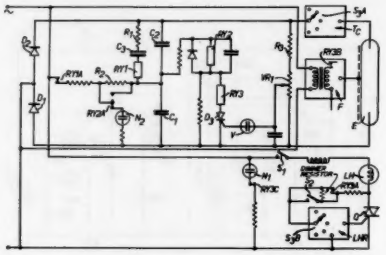
Filed May 18, 1972, Ser. No. 254,555

Int. Cl. H05b *37/00*

U.S. Cl. 315—241 P **5 Claims**

An electronic flash unit comprising an electronic flash tube, a modelling light, and a power supply and triggering arrange-

ment for the flash tube, in which the said arrangement is coupled to the circuit supplying the modelling light in such a way



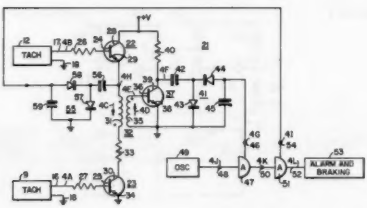
that triggering of the electronic tube will, at least for a space of time thereafter, modify the light output of the modelling light.

3,783,339

METHOD OF AND APPARATUS FOR PRODUCING A VEHICLE MOVEMENT CONTROL SIGNAL IN RESPONSE TO SENSING THE DIRECTION OF TRAVEL OF A VEHICLE

Thomas C. Matty, Irwin, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Jan. 26, 1972, Ser. No. 220,829
Int. Cl. H02p *15/00*
U.S. Cl. 317—5 **8 Claims**



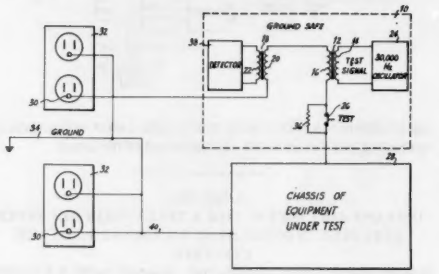
A pair of tachometers are operatively engaged with the drive mechanism of a vehicle. The tachometers are aligned relative to one another such that if the vehicle is traveling in a forward direction the signal provided at the output of the first tachometer leads the signal provided at the output of the second tachometer by a first predetermined phase angle, and if the vehicle is traveling in the reverse direction, the signal output of the second tachometer leads the signal output of the first tachometer by a second predetermined phase angle. Apparatus is included for sensing the relative phase of the respective signals provided at the outputs of the tachometers. In response to sensing that the output signal of the first tachometer leads the output signal of the second tachometer by the first predetermined phase angle, a vehicle movement control signal is provided which informs the vehicle drive mechanism that it is safe for the vehicle to continue its movement. In the event the apparatus senses that the output signal of the second tachometer leads the output signal of the first tachometer by the second predetermined phase angle, the provision of the vehicle movement control signal is inhibited.

3,783,340

GROUND SAFE SYSTEM

Richard S. Becker, Burlington, Vt., assignor to Bio-Tek Instrument, Inc., Shelburne, Vt.

Filed Sept. 7, 1972, Ser. No. 286,864
Int. Cl. H02h *3/16*
U.S. Cl. 317—18 B **5 Claims**



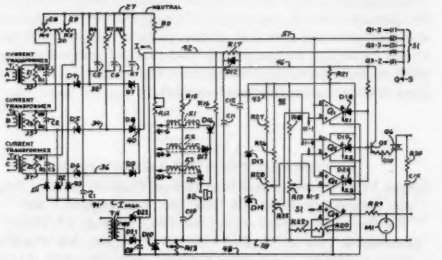
The chassis of the equipment which is to be monitored is connected in series with a closed switch, the secondary winding of a first transformer, and the primary winding of a second transformer to a ground terminal such as is commonly found in a grounded wall outlet. The primary winding of the first transformer is supplied with a high frequency signal from an oscillator. The secondary winding of the second transformer is connected to a transistorized alarm circuit. As long as the equipment is properly grounded, the high frequency signal will flow through the series circuit and keep the alarm inoperative. If the ground line of the hospital equipment is broken or increases greatly in its resistance, the high frequency signal will be interrupted and this will activate the alarm circuit. The system includes a redundant ground connection to the chassis of the equipment.

3,783,341

PHASE CONDITION INDICATING CIRCUIT

Robert W. Beckwith, 1002 Greenfield Ln., Mt. Prospect, Ill.

Continuation-in-part of Ser. No. 66,486, Aug. 24, 1970, Pat. No. 3,648,112. This application Jan. 3, 1972, Ser. No. 215,021
Int. Cl. H02h *3/26*
U.S. Cl. 317—27 R **2 Claims**



A circuit for an electric polyphase system for indicating conditions of unbalance between the phases, a condition of overloading or a condition of underloading, and for providing response thereto.

3,783,342

INDICATING FUSE HAVING IMPROVED DEIONIZING MUFFLER CONSTRUCTION

Peter H. Thiel, and James N. Santilli, both of Bloomington, Ind., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Mar. 3, 1972, Ser. No. 231,563
Int. Cl. H01h 85/38
U.S. Cl. 317—103 11 Claims

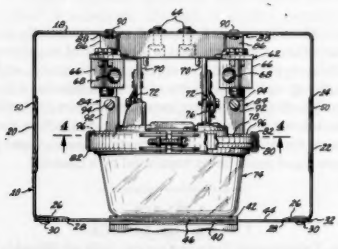
An improved indicating-type fuse structure is provided having an improved deionization muffler provided therefor to prevent ionized gas and metallic particles from the fusing link from being ejected into areas of high-electrical stress to minimize the possibility of flashover, and consequent damage to the equipment. The deionizing and condensing muffler has one end closed by an end-plug, and is provided with one or more lateral vents to relieve the gas pressure. In addition, the improved muffler has a lateral opening to accommodate the fuse link cable.

3,783,343

CONTAINER IN WHICH A WATTHOUR METER AND A METER SOCKET ARE ENCLOSABLY MOUNTABLE AND FOR READABLY DISPLAYING THE WATTHOUR METER

Clarence H. Byland, 1122 E. Concorda Dr., Phoenix, Ariz.

Continuation-in-part of Ser. No. 78,130, Oct. 5, 1970, abandoned. This application Apr. 27, 1972, Ser. No. 248,031
Int. Cl. H02b 9/00
U.S. Cl. 317—107 4 Claims



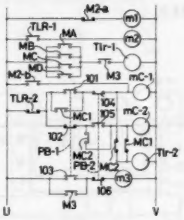
A container in which a watthour meter and meter socket are mountable for total enclosure thereof is provided with means therein for supporting the meter in conductive contact with the socket and for grounding the meter to the container.

3,783,344

LIFTING MAGNET ASSEMBLY

Kuniharu Ono; Tsutomu Kamae; Kinzo Takahashi, and Masao Miyatake, all of Niihama, Japan, assignors to Sumitimi Jukikai Kogyo Kabushiki Kaisha, Tokyo, Japan

Filed Jan. 5, 1972, Ser. No. 215,588
Int. Cl. H01f 7/04
U.S. Cl. 317—123 3 Claims



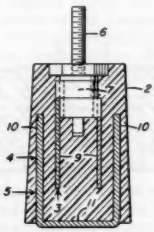
The assembly includes at least one core of permanent magnet metal, a respective magnetizing winding embracing each core and a casing having walls at least partially enclosing each winding. An energizing circuit connected to each winding includes switch means selectively operable to energize the windings in a forward direction, to augment the permanent magnet flux of the cores, or in a reverse direction, to neutralize the permanent magnet flux of the cores. A timer in the energizer circuit is operable, following the lapse of a predetermind short interval after energization of the windings in the forward direction, to pick up a load by magnetic attraction, to deenergize the windings so that the load is held magnetically by the permanent magnet flux of the cores. The energizing circuit further provides a small holding current to the windings in the forward direction. Each core has a pole piece of magnetizable metal on its outer end and, in one embodiment of the invention, the pole pieces are pivotally secured to the associated cores so as to be swingable to embrace a load having a circular cross section such as, for example, an iron pipe.

3,783,345

HEAT-DISSIPATING ENCAPSULATED SEMI-CONDUCTOR ASSEMBLY

Thomas D. Taylor, Roanoke, and Harvey F. Bredlow, Salem, both of Va., assignors to Graham-White Manufacturing Company, by said Taylor and Graham-White Sales Corporation, Salem, Va., by said Bredlow

Filed Sept. 8, 1971, Ser. No. 178,612
Int. Cl. H01l 3/00, 5/00
U.S. Cl. 317—234 R 6 Claims

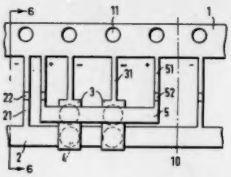


A diode or other semi-conductor device encapsulated with a directly connected heat sink in a heat-conductive, electrically insulating plastic matrix and dissipating heat generated by the device from the heat sink to a mounting bracket through a thickness of the matrix only sufficient for electrical insulation.

3,783,346
SEMICONDUCTOR ARRANGEMENT

Winfried Schierz, Nurnberg, Germany, assignor to Semikron Gesellschaft fur Gleichrichterbau und Elektronik mbH, Nurnberg, Germany

Continuation-in-part of Ser. No. 8,996, Feb. 5, 1970. This application Nov. 8, 1971, Ser. No. 196,291
Claims priority, application Germany, Apr. 1, 1969, P 19 16 554.9
Int. Cl. H01l 5/00
U.S. Cl. 317—234 R 8 Claims

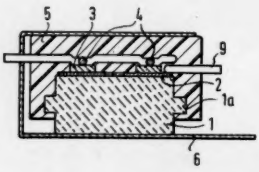


A semiconductor arrangement including a continuous band of planar conductive material forming a geometric structure with periodically repeating zones. The structure has conductor portions connected together by a longitudinal edge strip serving as a transporting strip, at least one contact bar extending alongside the transporting strip and connected to the transporting strip by a plurality of ones of the conductor portions, and planar contact portions which are also connected to the transporting strip and arranged between pairs of the plurality of conductor portions. The contact bar is arranged to be offset and to overlap a number of the contact portions by bending the conductor portions in the direction of the transporting strip and to contact the contact portions under pressure in the manner of a spring to form a clamp-type mount with the contact portions for at least one semiconductor wafer.

3,783,347
HEAT-EXTRACTING HOUSING FOR SEMICONDUCTOR

Liboslav Vladik, Nurnberg, Germany, assignor to SEMIKRON Gesellschaft fur Gleichrichterbau und Elektronik mbH, Nurnberg, Germany

Continuation of Ser. No. 868,328, Oct. 22, 1969, abandoned. This application July 27, 1972, Ser. No. 275,887
Claims priority, application Germany, Dec. 20, 1968, P 18 15 989.2
Int. Cl. H01l 3/00, 5/00
U.S. Cl. 317—234 R 14 Claims

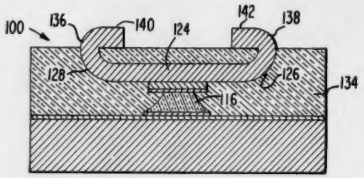


A semiconductor tablet is in thermally conductive contact with one face of an oxide ceramic plate. A plastic cover is molded around the tablet and is mechanically locked to the oxide ceramic plate. The opposite face of the oxide ceramic plate is free of the plastic cover so that heat extracting means can contact it.

3,783,348
ENCAPSULATED SEMICONDUCTOR DEVICE ASSEMBLY

George Allan Swartz, Princeton, N.J., and Richard Earl Chamberlain, Yardley, Pa., assignors to RCA Corporation, New York, N.Y.

Filed Oct. 30, 1972, Ser. No. 302,182
Int. Cl. H01l 3/00, 5/00
U.S. Cl. 317—234 R 12 Claims

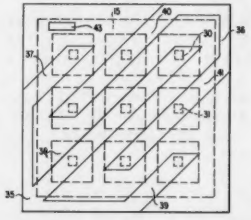


A semiconductor assembly is presented which uses an encapsulated semiconductor device with a substantially U-shaped contact ribbon bonded thereto. The contact ribbon has elbows which extend beyond the surface of the semiconductor device. Upon the application of direct, downward pressure at the ends of the contact ribbon, the downward pressure is transferred to and absorbed by the encapsulating material. This assembly allows for very short lead length to the semiconductor device while at the same time shielding the semiconductor device from direct pressure.

3,783,349
FIELD EFFECT TRANSISTOR

James D. Beasom, Indian Harbour Beach, Fla., assignor to Harris-Intertype Corporation, Cleveland, Ohio

Filed May 25, 1971, Ser. No. 146,737
Int. Cl. H01l 11/14
U.S. Cl. 317—235 R 12 Claims



A field effect transistor fabricated at least partially in a body of semiconductor material has a plurality of regions of one conductivity type adjacent a surface of the body, and has a gate overlying a plurality of intersecting channels of like conductivity type between the regions. Contacts in each of the regions are interconnected by a metallization pattern such that the regions form an array of alternating sources and drains, each source and drain being separated by a channel.

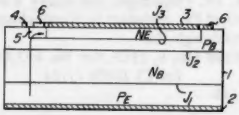
3,783,350
THYRISTOR DEVICE

Tsutomu Yatsuo, and Takuzo Ogawa, both of Hitachi, Japan, assignors to Hitachi Ltd., Tokyo, Japan

Filed Aug. 10, 1971, Ser. No. 170,595
Claims priority, application Japan, Aug. 14, 1970, 45/70789
Int. Cl. H01l 13/00
U.S. Cl. 317—235 R 15 Claims

A thyristor device comprising a first thyristor and a second thyristor of smaller capacity which is turned on in response to

a gate current smaller than that for the first thyristor. In the thyristor device, majority carriers accumulating in excess in an



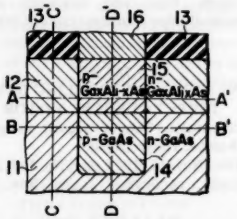
intermediate layer of the second thyristor due to the turn-on of the second thyristor are transferred into an intermediate layer of the first thyristor for turning on the latter.

3,783,351

SEMICONDUCTOR LASER DEVICE AND METHOD FOR MANUFACTURING THE SAME

Toshihisa Tsukada, Suginami-ku; Junichi Umeda, Kodaira, and Masao Kawamura, Kokubunji, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Sept. 7, 1971, Ser. No. 178,020
Claims priority, application Japan, Sept. 7, 1970, 45/77766
Int. Cl. H01l *15/00, 3/20;* H05b *33/00*
U.S. Cl. 317—235 R 13 Claims



A semiconductor laser device includes an n-type direct transition III-V Group compound semiconductor substrate, another n-type III-V Group compound semiconductor epitaxial growth layer formed on a principal plane of said semiconductor substrate and having a wider forbidden gap than the same, a p-type impurity diffusion layer which reaches said semiconductor substrate through a center portion of said epitaxial growth layer and extends to a pair of opposing end faces of the hetero-junction element, an electrode provided on the surface of said p-type impurity diffusion layer, and another electrode provided on the surface opposite thereto of said semiconductor substrate, a pair of opposing end faces of the hetero-junction element, being parallel to each other and mirror polished, thereby forming a laser resonator.

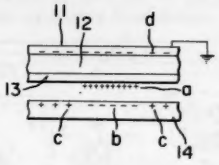
3,783,352

DEVELOPING METHOD FOR ELECTROPHOTOGRAPHY

Ikuo Soma, Tokyo, and Yujiro Ando, Yokohama, both of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Filed July 31, 1972, Ser. No. 276,368
Int. Cl. H01t *19/00*
U.S. Cl. 317—262 A 8 Claims

A developing method for electrophotography comprises the provision of a corona-ion shield member between a developing electrode for developing an electrostatic latent image and a charger disposed adjacent to the developing electrode, to



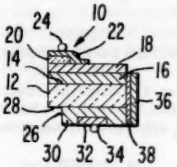
thereby prevent the developing electrode from being charged with corona ions from the charger.

3,783,353

ELECTROLUMINESCENT SEMICONDUCTOR DEVICE CAPABLE OF EMITTING LIGHT OF THREE DIFFERENT WAVELENGTHS

Jacques Isaac Pankove, Princeton, N.J., assignor to RCA Corporation, New York, N.Y.

Filed Oct. 27, 1972, Ser. No. 301,468
Int. Cl. H05b *33/00*
U.S. Cl. 317—235 R 10 Claims



An electroluminescent semiconductor device includes a transparent substrate having mounted on one surface a body of insulating crystalline gallium nitride and on its other surface a semiconductor diode which is capable of emitting red light. Contacts are provided for the gallium nitride body and the diode with one contact being common to each. When a voltage is applied across the gallium nitride body either blue or green light is emitted depending on the polarity of the voltage. When a voltage is applied across the diode, red light is emitted. All three colors of the emitted light can be seen through one surface of the gallium nitride body. A plurality of the electroluminescent semiconductor devices can be formed in an array to provide a flat display panel.

3,783,354

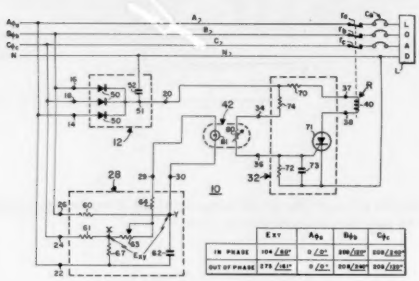
PHASE PROTECTION SYSTEM FOR AC POWER LINES

James C. Fletcher, Administrator of the National Aeronautic and Space Administration with respect to an invention by, and Wing J. Wong, 4054 Pelita Ave., Apt. 2, Los Angeles, Calif.

Filed Sept. 29, 1972, Ser. No. 293,727
Int. Cl. H02h *3/26*
U.S. Cl. 317—33 SC 5 Claims

A phase protection system is provided for protecting phase sensitive loads from being or remaining connected to AC

power lines whenever a phase reversal occurs. It comprises a solid state phase detection circuit, a DC power relay circuit, an AC-to-DC converter for energizing the relay circuit, and a



bi-stable 4-terminal transducer coupled between the phase detection circuit and the power relay circuit, for controlling both circuits.

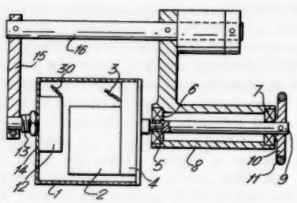
ERRATA

For Classes 317—99 and 317—101 R see:
Patents Nos. 3,783,320 and 3,783,321

3,783,355
PLURAL MOTOR DIFFERENTIAL CONTROL MECHANISM

Peter Gabor Kalman, 51 Compayne Gdns., London, England

Filed Oct. 29, 1971, Ser. No. 193,766
Claims priority, application Great Britain, Oct. 30, 1970, 51,812/70
Int. Cl. H02f *5/46*
U.S. Cl. 318—8 **14 Claims**

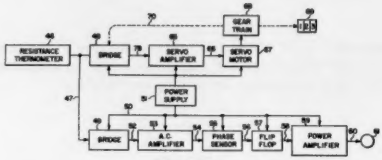


Mechanism for controlling the rate of movement of a movable body by resolving mechanically the difference between the actual rate of movement of the body and the desired rate of movement as established by a motor driven at a predetermined rate so as to provide a differential movement constituting an error signal. A rotary mechanism has the rotor of a motor connected through high ratio gear to a coupling wheel adapted for rotation by movement of the moving body and the stator of a motor mounted in a housing rotatable relative to a support; the difference between the actual and the desired speed is resolved as movement of the housing relative to the support which actuates a potentiometer to derive a control signal. A linear arrangement is also described, to control the rate of filter forwarding in a plastics filtering apparatus.

3,783,356
NULL BALANCE INDICATING AND CONTROL APPARATUS AND PHASE SENSITIVE PULSE RESPONSIVE CIRCUITS FOR USE THEREIN

Basil M. Lide, III, Pittsburgh, and Harry Kowalcheck, West Newton, both of Pa., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed May 6, 1965, Ser. No. 453,692
Int. Cl. G05b *11/14*
U.S. Cl. 318—18 **20 Claims**

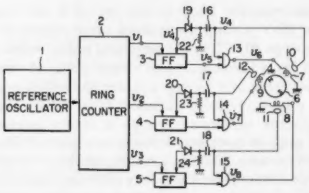


In apparatus and circuits especially suitable in instrumentation for indication and control of nuclear power plant coolant systems, a bridge contains in a sensing arm a resistance thermometer or a differential transformer. The output of the bridge is supplied to a servo amplifier which feeds a servo motor which is operatively connected to a bridge arm to utilize an error signal to rebalance the bridge and reduce the error signal to zero, and at the same time supply an input to a counting or indicating device. Unique circuits provide control set points, isolation being provided between the indication and control functions. New and improved phase sensitive monostable multivibrator transistor circuits are employed.

3,783,357
CONSTANT SPEED CONTROLLING DEVICE FOR A DIRECT CURRENT MOTOR

Toshikazu Ichiyanage, Tokyo, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Nov. 10, 1971, Ser. No. 197,255
Claims priority, application Japan, Nov. 14, 1970, 45-100611
Int. Cl. H02k *29/00*
U.S. Cl. 318—138 **7 Claims**



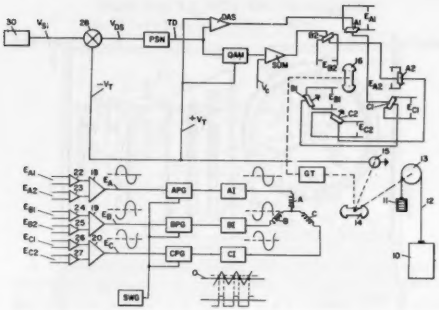
An improved DC motor is provided with an external reference (frequency signal) oscillator, means for detecting the angular position of a rotor of the motor including magnets, and control means which is adapted to flow the exciting current to the field or driving windings of the motor in synchronism with either the output signals from said reference oscillator and said detecting means, and to interrupt the exciting or driving current in response to the other signal, whereby the motor functions as a DC motor until its rotational speed reaches a predetermined speed to provide the starting torque, but functions as a synchronous motor which rotates in synchronism with the signals from said reference oscillator after the speed of the motor has reached said predetermined speed.

3,783,358

CONTROL SYSTEM FOR A RELUCTANCE TYPE MOTOR

Otto Albert Krauer, Tuckahoe, N.Y., assignor to Otis Elevator Company, New York, N.Y.

Filed June 22, 1972, Ser. No. 265,174
Int. Cl. H02p 7/36
U.S. Cl. 318—166 14 Claims



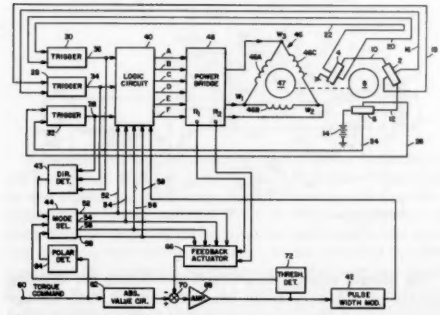
A control system for a reluctance type motor which is operable in response to a desired torque signal and a signal signifying the instantaneous speed of the motor as well as to a flux producing bias signal and to the position of the motor rotor to produce voltages for the phase windings of the motor which produce torque in response to a continuously applied load to maintain the rotor of the motor under such load at zero angular velocity at any angular position and to move it at any speed from zero angular velocity to a rated operating speed.

3,783,359

BRUSHLESS D. C. MOTOR USING HALL GENERATORS FOR COMMUTATION

Saul L. Malkiel, East Orange, N.J., assignor to The Bendix Corporation, Teterboro, N.J.

Filed Dec. 23, 1971, Ser. No. 211,519
Int. Cl. H02k 29/00
U.S. Cl. 318—254 9 Claims



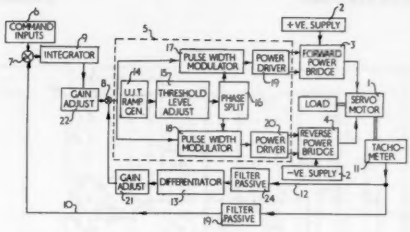
A brushless motor is driven by a transistorized bridge and commutated by an arrangement of Hall generators. The motor is controlled in torque generating and constant speed modes. Pulse width modulation is applied to control the amplitude of the motor voltage and regenerative braking is applied.

3,783,360

ELECTRIC MOTOR SPEED CONTROL SYSTEMS

John E. Bundy, Churchover, near Rugby, England, assignor to Dunlop Limited, London, England

Filed May 23, 1972, Ser. No. 256,183
Claims priority, application Great Britain, May 28, 1971, 18,079/71
Int. Cl. H02p 5/16
U.S. Cl. 318—327 11 Claims



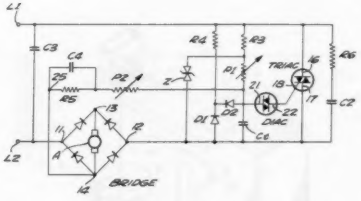
A control system, for maintaining an electric motor at a required speed of rotation irrespective of the externally applied load, in which a command input provides a voltage proportional to the desired speed and direction of rotation of the motor and a switching circuit supplies current to the motor as a series of current pulses of constant frequency. The switching circuit is arranged to vary the duration of the pulses of current applied to the motor in response to input signals received from the command input and two negative feed back loops, one feed back loop being arranged to feed back a voltage dependent on the actual velocity of the motor and the other on the acceleration of the motor, of which the following is a Specification.

3,783,361

TRIAC MOTOR SPEED CONTROL

Raymond J. Mason, Lynnwood, Calif., assignor to Minarik Electric Co., Los Angeles, Calif.

Filed Apr. 24, 1972, Ser. No. 246,892
Int. Cl. H02p 5/16
U.S. Cl. 318—331 7 Claims



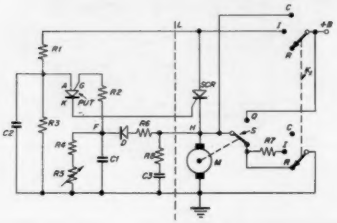
A motor speed control including a full wave diode bridge rectifier for rectifying alternating current received from a supply circuit, a triac coupled in a series loop circuit with the bridge rectifier and the supply line for controlling the flow of current through the bridge rectifier during both positive and negative half-cycles of the supply line voltage, a control circuit including a diac coupled in series with a timing capacitor for controlling the firing of the triac, and a feed back loop coupled between the junction of the diac and timing capacitor and the negative output terminal of the bridge circuit.

3,783,362

ELECTRONIC CONTROL DEVICE FOR INTERMITTENT OPERATION OF A WINDSCREEN WIPER, PARTICULARLY FOR MOTOR VEHICLES

Eugenio Basso, Levico; Gaetano Viviani, and Luigi Cartabia, both of Milano, all of Italy, assignors to Fabbrica Italiana Magneti Marelli S.p.A., Milan, Italy

Filed Nov. 2, 1971, Ser. No. 194,968
Claims priority, application Italy, Nov. 5, 1970, 31340/70
Int. Cl. H02p 3/16
U.S. Cl. 318—443 6 Claims



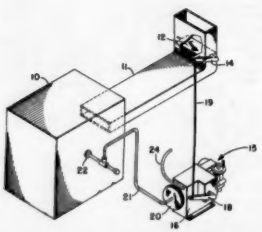
An adjustable electronic timing device for controlling the operating speed of windscreen wipers. A switch is provided for operating the wipers in either a continuous or an intermittent fashion. During intermittent operation, a programmable unijunction transistor (PUT) is caused toconduct to trigger an SCR which is connected in circuit to the wiper motor. A capacitor is charged during each wiping cycle and discharges at the termination of each wiping cycle to prevent retriggering of the SCR until the capacitor is fully discharged. The wiper operating frequency is adjusted by adjusting the resistivity of the discharge path for the capacitor. A braking circuit is provided for dynamic braking of the wiper motor.

3,783,363

VARIABLE POWER ACTUATOR AND SWITCH THEREFOR

Arthur A. Kraft, Strongsville, Ohio, assignor to Vari-Systems, Inc., Cleveland, Ohio

Filed Mar. 23, 1972, Ser. No. 237,365
Int. Cl. G05b 13/02
U.S. Cl. 318—481 16 Claims



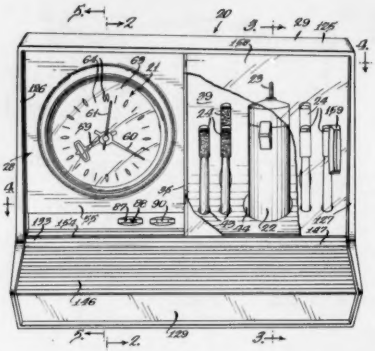
A variable rotary power actuator for modulating damper position in response to sensed pressure levels includes a solid state reversible motor drive having SCR's triggered by a switch monitoring diaphragm extension. The switch is adjustable to vary the pressure differential in conjunction with an adjustable spring loaded mechanical linkage for determining the pressure set point.

3,783,364

ELECTRIC APPLIANCE

George P. Gallanis, Elmhurst, and Albert R. Spohr, Park Ridge, both of Ill., assignors to Sunbeam Corporation, Chicago, Ill.

Filed June 21, 1967, Ser. No. 647,855
Int. Cl. H01m 45/04
U.S. Cl. 320—2 10 Claims



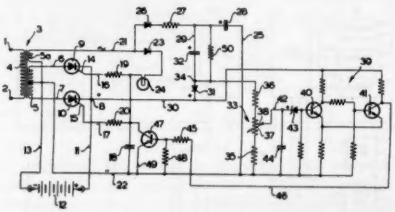
An electric appliance including timing means and adapted to receive a battery operated device for storage and for the purpose of charging the battery contained therein. The appliance has a plastic housing which provides chambers for the timing means, the battery operated device, accessory items such as toothpaste and for cord storage. Two lamps are provided, one of which indicates that the battery operated device is being charged, and the other both illuminates the timing means and directs light outwardly to provide a night light.

3,783,365

BATTERY CHARGING ARRANGEMENT WITH AUTOMATIC CHARGE TERMINATION CIRCUIT HAVING INPUT RIPPLE SUPPRESSION

Karl Ackermann, Berlin, Germany, assignor to Robert Bosch Photokin GmbH, Stuttgart, Germany

Filed May 26, 1972, Ser. No. 257,332
Claims priority, application Germany, May 28, 1971, P 21 26 528.1
Int. Cl. H02j 7/04
U.S. Cl. 320—39 6 Claims



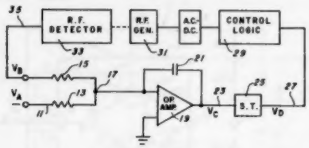
The control voltage for a circuit terminating the charging process of a battery being charged from an A.C. voltage source through first rectifiers is derived from a common point of a second rectifier connected with reversed polarity to one battery output terminal and a first capacitor connected in series with said second rectifier and also connected to the output of a D.C. reference voltage source. The D.C. reference voltage source is a second capacitor connected through a diode and resistor to an additional winding of the output transformer

of the A.C. voltage source. A discharge resistor connected in parallel with the first capacitor allows discharge thereof when the A.C. output voltage decreases.

3,783,366
DUTY CYCLE CONTROL SYSTEM

Harold Autrey Cox, Richardson, Tex., assignor to Texas Instruments Incorporated, Dallas, Tex.

Filed Aug. 13, 1971, Ser. No. 171,673
Int. Cl. H02m 7/12
U.S. Cl. 321—5 **5 Claims**

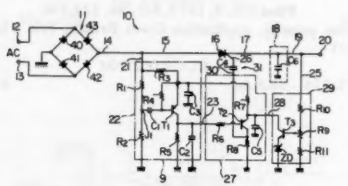


A closed loop control system for controlling the average output of a generator or other device. The output is detected and the detected signal is applied to a summing point at which it is summed with an externally supplied control signal. The summed signal is integrated and applied to a Schmidt Trigger, the output of which is coupled through control logic to control the generator. The generator duty cycle is controlled to maintain a desired average output. In a specific embodiment wherein the average output of a three phase converter supplying D.C. to the generator is controlled, at each duty cycle the converter is turned on at an initial reference potential crossing point and thereafter the output is a function of the difference between the most positive and the least positive phases.

3,783,367
CONSTANT-VOLTAGE CONVERTER EMPLOYING THYRISTOR

Katsuhiko Yamamoto, and Ryuhei Nakabe, both of Osaka, Japan, assignors to Matsushita Electric Industrial Company Limited, Osaka, Japan

Filed Nov. 22, 1971, Ser. No. 200,760
Int. Cl. H02p 13/26; H02m 7/00
U.S. Cl. 321—11 **1 Claim**

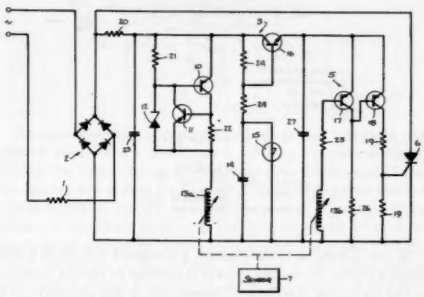


A constant voltage converter having a rectifier for rectifying AC power and with a thyristor connected between the rectifier and a filter for selectively passing therethrough a rectified output to an output terminal. There is a wave generator connected to the output of the rectifier for producing a first signal and an intergrator circuit connected to the output of the wave generator for producing an integral output in response to this first signal. In addition there is a detector circuit for detecting a fluctuation of the rectified output power and for producing second signal. A comparison circuit is connected between the intergrator circuit and the detector circuit for producing third signal in accordance with the comparison. A trigger circuit is connected between the comparison circuit and the control gate of the thyristor for supplying a phase control signal to the thyristor to thereby obtain a constant voltage output regardless of the fluctuation of the rectified output.

3,783,368
PROCESS AND CIRCUIT FOR THE APPROXIMATELY CONTINUOUS CONTROL BY MEANS OF AN ELECTRIC ON-OFF CONTROL

Peter Dosch, Jona, and Dieter Dorsch, Ebnat-Kappel, both of Switzerland, assignors to Heberlein & Co. AG., Wattwil, in the Canton of St. Gall, Switzerland

Filed Apr. 3, 1972, Ser. No. 240,543
Int. Cl. H02m 7/20; G05f 1/64
U.S. Cl. 321—18 **16 Claims**

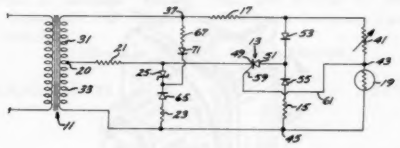


Continuous control of an on-off-type A-C powered regulating system incorporating a thyristor switch is obtained by varying the switch activation threshold voltage repetitively at a rate the period of which is several times greater than the period of the supply voltage.

3,783,369
VOLTAGE COMPENSATED ELECTRICAL CONTROL SYSTEM

William W. Chambers, Anaheim, Calif., assignor to Robertshaw Controls Company, Richmond, Va.

Filed Nov. 5, 1971, Ser. No. 196,009
Int. Cl. G05f 1/44
U.S. Cl. 323—22 SC **12 Claims**

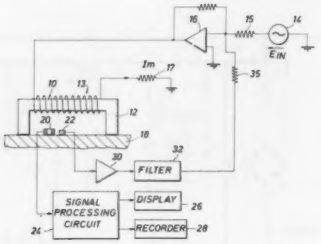


A voltage compensated electrical control system for connection to an AC source and including a gate controlled rectifier, compensating resistor connected with the source and cathode of the rectifier and voltage control means responsive to a selected voltage to be rendered conductive to initiate current flow through the resistor in proportion to the magnitude by which the selected voltage is exceeded to modify the signal imposed between the gate and cathode to compensate for the source voltage changes to prevent erratic triggering of the SCR as a result of voltage changes.

3,783,370
METHOD AND CIRCUIT FOR COMPENSATING BARKHAUSEN SIGNAL MEASUREMENTS IN MAGNETIC MATERIALS HAVING A VARIABLE GEOMETRY

James A. Birdwell; John R. Barton, and Clarence G. Gardner, all of San Antonio, Tex., assignors to Southwest Research Institute, San Antonio, Tex.

Filed Dec. 6, 1972, Ser. No. 312,675
Int. Cl. G01r 33/12
U.S. Cl. 324—34 R 13 Claims

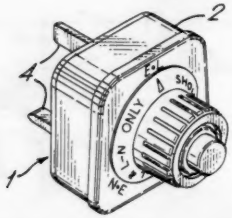


In one exemplar embodiment, a feedback circuit in a Barkhausen signal measuring system is utilized to reduce variations in the measured Barkhausen signal due to the geometry of the magnetic body. The improvement utilizes a magnetic flux detector disposed in the area adjacent where the Barkhausen signal is measured for detecting the magnetic flux density of the test body. The signal generated by the detector is fed back to a gain control for controlling the gain of the power source providing the time-varying current to the Barkhausen signal measuring system, the gain control controlling the magnitude of the time-varying current in order to maintain the rate of change of the magnetic flux in the body in the area of the detector at a predetermined value.

3,783,371
ROTARY SWITCH THREE PIN CIRCUIT TESTER FOR ELECTRICAL OUTLET SOCKET

Roderick Duncan McMillan, 18 Michleham Down, Woodside Park, London, England

Filed June 19, 1972, Ser. No. 264,384
Claims priority, application Great Britain, July 7, 1971, 31907/71
Int. Cl. G01r 31/02
U.S. Cl. 324—51 11 Claims

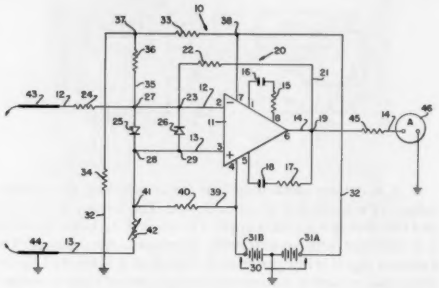


An electrical circuit tester for testing the wiring to an electrical socket comprising a housing having three pins protruding therefrom for connection into a socket to be tested. A three-position rotary switch incorporating a neon indicator bulb is provided on the housing and is arranged to interconnect selected pairs of the pins. The switch is provided with a pointer, and the housing carries a legend showing which pair of pins is electrically coupled together and the operative state of the indicator for a correctly wired socket at each setting of the switch.

3,783,372
ELECTRICAL TEST APPARATUS INCLUDING HIGH GAIN AMPLIFIER CIRCUIT

James C. Boyd, Fairborn, Ohio, assignor to The National Cash Register Company, Dayton, Ohio

Filed May 19, 1972, Ser. No. 255,067
Int. Cl. G01r 31/22, 31/02
U.S. Cl. 324—158 T 8 Claims

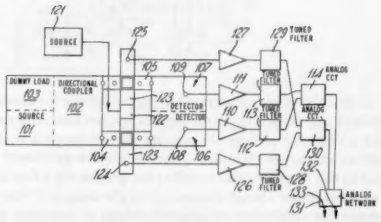


A test apparatus comprising an amplifier circuit including a high gain or operational amplifier and readout means connected to an output means or lead of the amplifier circuit. The amplifier circuit is adapted to produce a first value output (current or voltage) in the readout means with the input means or leads of the amplifier circuit connected in an open circuit. The amplifier circuit includes amplifier offset producing means which causes a second value output (current or voltage), distinctively different from the first value output in the readout means with the input means of the amplifier circuit connected in a short circuit.

3,783,373
APPARATUS FOR MEASURING DENSITY AND MOISTURE

Tadeusz Bronislaw Jawor, London, England, assignor to Molins Limited, Deptford, England

Filed Feb. 8, 1972, Ser. No. 224,798
Claims priority, application Great Britain, Feb. 11, 1971, 4495/71
Int. Cl. G01r 27/04
U.S. Cl. 324—58.5 A 6 Claims



A device for monitoring density of a rod of tobacco in a cigarette-making machine comprises a source of microwave radiation and a waveguide through which said radiation is propagated in the evanescent mode to a detector. The rod is passed across the path of the radiation, through apertures in the walls of the waveguide. The radiation may be split into two beams, one beam being directed through said waveguide and

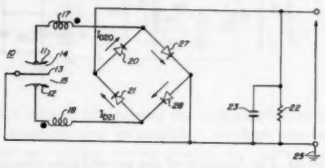
the other beam directed through a second, similar waveguide to a second detector providing a reference signal.

3,783,374

CAPACITANCE DIFFERENCE DETECTOR CIRCUIT

Melvin O. Eide, Bellevue, and Donald E. Clark, Redmond, both of Wash., assignors to Sundstrand Data Control, Inc., Redmond, Wash.

Filed Apr. 7, 1972, Ser. No. 242,082
Int. Cl. G01r 11/52, 27/26
U.S. Cl. 324—60 C 9 Claims



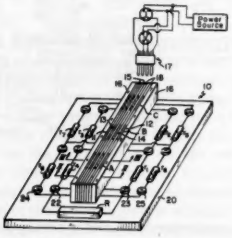
A circuit for detecting or sensing the ratio of or unbalance between two impedance elements, as the sections of a differential capacitor in a servoed instrument. A source of alternating current has two outputs of opposite phase, one connected in each of a pair of circuits with the two impedance elements. A diode in each of the circuits is poled so that both circuits conduct during the same half cycle. A load connected with both circuits sums the opposite phase currents and the difference between the currents represents the ratio of the impedance elements.

3,783,375

MEANS FOR CALIBRATING A FOUR-PROBE RESISTIVITY MEASURING DEVICE

Allan I. Bennett, Export, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Feb. 21, 1973, Ser. No. 334,326
Int. Cl. G01r 27/14
U.S. Cl. 324—64 6 Claims



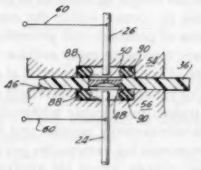
A means for calibrating a four-probe resistivity measuring device which comprises at least one set of electrical contacts consisting of a pair of inner and outer conductive pads. The conductive pads are collinear, coplanar and equally spaced apart to make electrical contact with each of the four probes. Each pad is insulated from each of the other pads, and each pad of each pair of pads is electrically connected to the other pad of the pair through a resistance equivalent circuit.

3,783,376

PARTICLE COUNTER HAVING REMOVABLE APERTURE SLIDE

Thaddeus M. Doniguian, Laguna Beach, Calif., assignor to Becton, Dickinson and Company, East Rutherford, N.J.

Filed June 21, 1972, Ser. No. 264,748
Int. Cl. G01m 27/00, 27/02
U.S. Cl. 324—71 CP 7 Claims



An aperture slide receptacle has a top and a bottom plate spaced apart. Each plate has a circular depression formed therein for receiving an O-ring. Said depressions and O-rings are juxtaposed so that the O-rings contact each other and form a seal between the top and bottom plates. A pair of hollow tubes are mounted in the top and bottom plates so that they are in axial alignment having ends spaced apart and terminating at the center of the O-rings. The first of said tubes extends downwardly into a fluid source, while the second of said tubes is connected to a means for drawing the fluid from the source through the tubes.

A thin Myler slide has a jewel pressed into a hole formed in the slide. The jewel has an aperture formed therein which is positioned between the ends of the hollow tubes by inserting the Mylar slide between the spaced top and bottom plates. The O-rings forming a seal between the slide and the top and bottom plates.

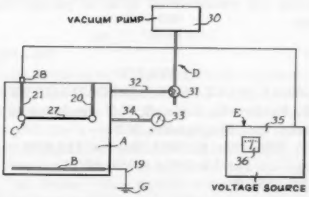
The tubes form electrodes upon which an rf signal is imposed to develop a voltage across the fluid which is drawn through the aperture. The rf signal is modulated by the conductivity of the fluid instantaneously passing through the aperture so that when a high resistance particle suspended in the fluid passes through the aperture, the rf signal intensity increases in relationship to the rf signal intensity when the low resistance fluid is passing through the aperture. The rf signal is processed to provide pulses corresponding to the particles passing through the aperture and said pulses are counted to provide an indication of the number of particles passing through the aperture.

3,783,377

CORONA TEST DEVICE AND METHOD

John J. Shortall, Yardley, Pa., and Calvin C. Oliver, Gainesville, Fla., assignors to Southwire Company, Carrollton, Ga.

Filed Apr. 29, 1971, Ser. No. 138,599
Int. Cl. G01r 31/02
U.S. Cl. 324—72 12 Claims



A method and device for using voltages of relatively low potential to determine the relative susceptibility of an uninsu-

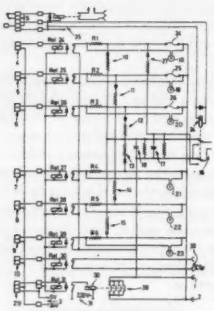
lated electrical power transmission cable to the occurrence of corona and related phenomena when extra high voltages are transmitted by the cable. The method includes placing a short length of an uninsulated electrical power transmission cable with its lengthwise axis substantially parallel and relatively close to a substantially flat and relatively large plate of conductive material at ground potential, placing the short length of cable and the plate in an enclosure with air, and varying the pressure of the air and the potential of an alternating current voltage applied to the length of cable so as to cause the occurrence or extinction of corona within the enclosure at one or more combinations of pressure and potential. The device includes an enclosure having an inner surface formed by a substantially flat plate of conductive material at ground potential, mounting means for mounting a short length of an uninsulated electrical power transmission cable within the enclosure with its lengthwise axis substantially parallel and relatively close to the plate, pressure means for varying the pressure of air within the enclosure, and voltage means for applying an alternating current voltage of varying potential to the short length of cable.

3,783,378

BATTERY ADAPTER

Walfrid Mildner, Verlautenheide, Germany, assignor to ERA Electronische Rechnanlagen Studiengesellschaft fur Wissenschaftliche Datenverarbeitung mbH, Verlautenheide, Germany

Filed July 31, 1972, Ser. No. 276,690
Int. Cl. G01r *15/12*
U.S. Cl. 324—73 R **10 Claims**



An adapter may be quickly and easily connected between a vehicle battery and the vehicle battery terminals. A digital computer may then be connected to the adapter and may monitor the vehicle electrical system. Means are provided whereby the computer may automatically insert any one of a series of measuring resistors in series with the battery current flow so as to allow a wide variety of measurements to be made with a single adapter. Means are also provided whereby the computer may shunt the measuring resistors when excessive current levels are encountered so as to protect them from destruction.

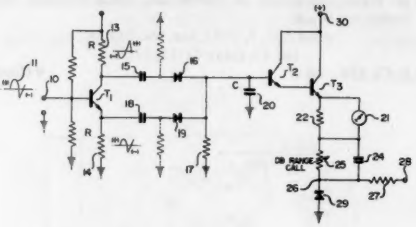
3,783,379

FULL WAVE PEAK RESPOND METER

Mioljub R. Nestorovic, Endwell, N.Y., assignor to McIntosh Laboratory, Inc., Binghamton, N.Y.

Filed Mar. 8, 1971, Ser. No. 122,010
Int. Cl. G01r *19/16, 19/22*
U.S. Cl. 324—103 P **6 Claims**

A peak voltage detector responsive to a wide band AC signal, which detects both the negative and positive peaks of the signal, indicating which is the larger. The signal is applied to a transistor amplifier, and outputs are taken from equal collector and emitter loads through capacitors and diodes to a common high resistance load and a sustain timing capacitor in parallel to the load. The voltage across the latter is applied to the base of an emitter loaded Darlington amplifier. The emitter load includes a meter in series with a second time constant circuit. The function of the second time constant circuit is to accelerate upward deflection of the meter. The function of the first time constant circuit is to hold a charge long enough to maintain the meter reading for a time after the peak pulse has passed.

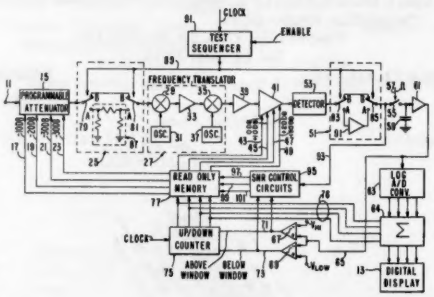


3,783,380

FREQUENCY SELECTIVE LEVEL METER WITH AN AUTOMATIC DISTORTION ELIMINATOR

Donald A. Bradley, Milpitas, Calif., assignor to Cushman Electronics, Inc., Sunnyvale, Calif.

Filed May 8, 1972, Ser. No. 251,296
Int. Cl. G01r *1/02*
U.S. Cl. 324—130 **19 Claims**



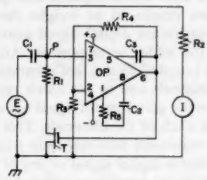
A frequency selective level meter having automatic circuits for first adjusting an input attenuator to bring a signal level applied to a measuring circuit within its measuring range or "window," and subsequently to adjust the input attenuator and a high gain amplifier in the path of the signal by equal amounts in order to reduce distortion generated as a result of nonlinearities of components operated on by the signal. Such distortion is detected by switching simultaneously both input and output circuits of non-linear elements between two levels of gain or attenuation while keeping the overall gain of the circuit the same in both levels.

3,783,381

RECTIFIER CIRCUIT USING MOS FIELD EFFECT TRANSISTOR

Masakazu Oshima, 1529 Nakashinden, Ebina-shi, Kanagawa-ken, Japan

Filed May 31, 1972, Ser. No. 258,270
Claims priority, application Japan, May 31, 1971, 46/36975
Int. Cl. G01n *15/10*; H03k *17/60, 3/26*
U.S. Cl. 324—132 4 Claims



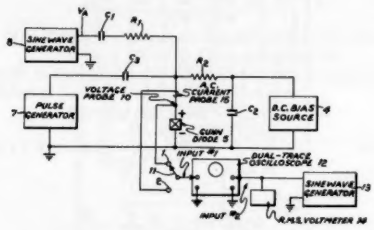
A rectifier circuit, comprising the combination of a MOS field effect transistor and an amplifier, in which non-linearity in the input a-c voltage versus output d-c current characteristic in the low voltage region, such as encountered in the conventional diode rectifier circuit, is improved, thus realizing linearity down to millivolt range.

3,783,382

APPARATUS AND A METHOD FOR EMPLOYING SAID APPARATUS TO DETERMINE THE LOW FIELD RESISTANCE OF DC-BIASED GUNN DIODES

Allan L. Reynolds, White Plains, N.Y., assignor to International Telephone and Telegraph Corporation, Nutley, N.J.

Filed Feb. 5, 1973, Ser. No. 329,767
Int. Cl. G01r *31/22, 27/02*
U.S. Cl. 324—158 D 23 Claims



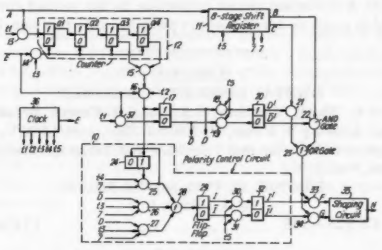
A Gunn diode is DC-biased to its operating point. A negative pulse having an amplitude equal to the bias voltage is applied across the Gunn diode. A first sinewave signal having a given frequency and a selected magnitude is applied across the Gunn diode. A voltage probe is coupled by a switch to one input of a dual-trace oscilloscope to display the waveform of the voltage across the Gunn diode on the oscilloscope. A second sinewave signal having the given frequency is applied to the other input of the dual-trace oscilloscope. The displayed waveform of the second signal is adjusted in magnitude until it is superimposed upon the first waveform on the oscilloscope. A RMS voltmeter is coupled across the second input of the oscilloscope to measure the value of the voltage of the second signal and, hence, the voltage across the Gunn diode, after the two sinewave signals are superimposed. The switch is moved to a second position so that the output of an AC current probe is coupled to the first input of the oscilloscope. The current probe converts the current through the Gunn diode to a voltage and has a known calibration or ampere to voltage conversion factor. The voltage waveform produced by the current probe is displayed on the oscilloscope and the magnitude of the second sinewave signal is adjusted until it is superimposed upon this displayed waveform. The RMS voltmeter measures the value of this second sinewave signal after these two sinewave signals are superimposed. This latter value is equal to the voltage at the output of the current probe. This latter reading of the voltmeter is multiplied by the calibration factor to provide the value of the current flowing through the Gunn diode. Then the first reading of the voltmeter is divided by the second reading of the voltmeter to determine the low field resistance of the Gunn diode.

3,783,383

LOW DISPARITY BIPOLAR PCM SYSTEM

Daniel Emile Forster, Suresnes, and Jean Perrault, Louveciennes, both of France, assignors to International Standard Electric Corporation, New York, N.Y.

Filed May 10, 1972, Ser. No. 252,112
Claims priority, application France, May 28, 1971, 71.19563
Int. Cl. H04b *1/00*
U.S. Cl. 325—38 A 4 Claims



There is disclosed herein a signalling process for a PCM transmission system having reduced disparity, that is, a substantially equal number of binary "1" digits for the pulse stream. This is accomplished by complementing normal PCM words if the number of binary "1"s in a word are less than $n/2$, where n is equal to the number of digits per word, and using alternate-polarity bipolar code PCM transmission. In accordance with the present invention the complementing of PCM words is indicated by a polarity violation of the bipolar code of the first digit of the complemented words. This results in two pulses of the same polarity being adjacent each other rather than alternate polarity as is usual in alternate-polarity bipolar PCM. Transmission and reception circuits are also disclosed to implement the PCM signalling process of this invention.

3,783,384

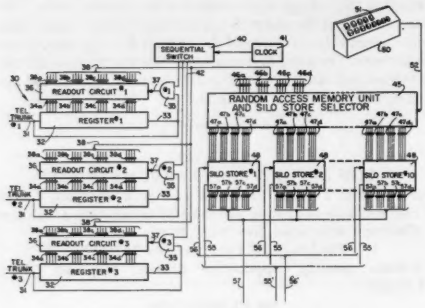
HIGH SPEED SELECTIVE CALLING COMMUNICATION SYSTEM HAVING LOW DRAIN RECEIVER

Keith H. Wycoff, P.O. Box 308, Lexington, Nebr.

Continuation-in-part of Ser. No. 861,719, Sept. 29, 1969, Pat. No. 3,651,413. This application Jan. 31, 1972, Ser. No. 222,146
Int. Cl. H04b *1/00*
U.S. Cl. 325—55 30 Claims

The system includes a transmitter which sequentially transmits a multiplicity of code signals each having a cue tone and a predetermined number of control tones, the code signals being arranged into a plurality of signal groups for sequential transmission thereof, the number of signal groups corresponding to the number of cue tone frequencies, each signal group containing all those code signals which include the corresponding cue tone of that group. The system also comprises at least one receiver including a pulser circuit for producing a series of pulses intermittently to render a signal processing circuit operative, a decoder responsive to a predetermined cue

tone for generating a first control signal and responsive to a predetermined code signal for generating a second control signal, the pulser circuit being responsive to the first control signal to furnish a continuous supply voltage to the processing circuit, a utilization circuit responsive to the second control signal to cause an annunciator to provide an alerting signal.

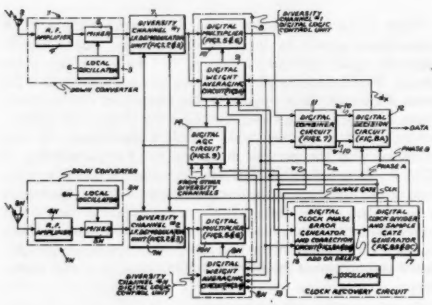


3,783,385

DIGITAL DIVERSITY COMBINER

James G. Dunn, Montclair, N.J.; John R. Cowan, Brooklyn, and Anthony J. Russo, Richmond Hills, both of N.Y., assignors to International Telephone and Telegraph Corporation, Nutley, N.J.

Filed Nov. 28, 1972, Ser. No. 310,192
Int. Cl. H04b 1/06
U.S. Cl. 325—305 **17 Claims**


DIVERSITY CHANNEL #1 R.F. AMPLIFIER AND DEMODULATOR UNIT (HUGHES)
DIVERSITY CHANNEL #2 R.F. AMPLIFIER AND DEMODULATOR UNIT (HUGHES)
DIVERSITY CHANNEL #3 R.F. AMPLIFIER AND DEMODULATOR UNIT (HUGHES)
DIGITAL MULTIPLIER (HUGHES)
DIGITAL WEIGHT AVERAGING CIRCUIT
DIGITAL AGC CIRCUIT (HUGHES)
DIGITAL DECISION CIRCUIT (TYPE T)
DIGITAL DECISION CIRCUIT (TYPE BA)
DIGITAL CLOCK PHASE CORRECTION AND CORRECTION CIRCUIT (HUGHES)
DIGITAL CLOCK DIVIDER AND SAMPLE GATE GENERATOR (HUGHES)
DIVERSITY CHANNEL & DIGITAL LOGIC CONTROL UNIT
DOWN CONVERTER
LOCAL OSCILLATOR
DRIVER
DATA
PHASE A
PHASE B
SAMPLE GATE
CLOCK RECOVERY CIRCUIT

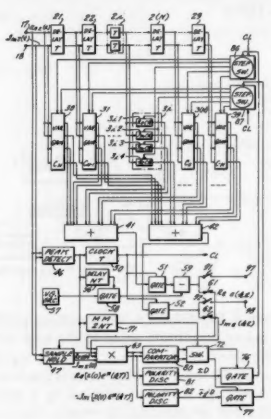
This relates to a predetection maximal ratio digital diversity combiner for a phase shift keyed digital data signal propagating on N different paths through a dispersive medium, where N is an integer greater than one. Each of N signal channels respond to the data signal propagated on a different one of the N different paths. Each of the channels include an arrangement to separate the data signal into an inphase component and a quadrature component and also a pair of analog-to-digital converters to convert the inphase component into an inphase digital signal and the quadrature component into a quadrature digital signal. A digital adder arrangement is coupled in common to the output of each of the N channels to digitally add the inphase digital signal of each of the channels together to produce a combined inphase digital signal and to digitally add the quadrature digital signals of each of the channels together to produce a combined quadrature digital signal. A decision circuit responds to the most significant digit of both the combined inphase digital signal and the combined quadrature digital signal to recover the data conveyed by the data signal. A clock recovery circuit responds to the combined inphase digital signal, the combined quadrature digital signal and the recovered data to produce properly phased timing signals for control of the decision logic, each of the analog-to-digital converters and an automatic gain control circuit common to each of the N channels. Each of the channels further include an arrangement coupled between the associated pair of analog-to-digital converters and the digital adder arrangement and also to the decision circuit. This arrangement is responsive to the recovered data and the inphase and quadrature digital signals to determine the maximal ratio weights of these signals. The determined inphase and quadrature digital weight signals are employed to weight the inphase digital signal and the quadrature digital signal prior to digitally adding thereof in the adder arrangement. An automatic gain control circuit is coupled to the last mentioned arrangement of each of the channels and to the clock recovery circuit to produce an automatic gain control signal to control the gain of the data signal in each of the channels. This is accomplished by detecting the maximum maximal ratio weight of either the inphase or quadrature digital signal of any of the channels involved in the diversity combiner and generating from this maximum maximal ratio weight an automatic gain control voltage.

3,783,386

EQUALIZER OF PRESET TYPE FOR QUADRATURE AMPLITUDE MODULATED SIGNALS

Yoichi Sato, Tokyo, Japan, assignor to Nippon Electric Company, Limited, Tokyo, Japan

Filed June 12, 1972, Ser. No. 261,949
Claims priority, application Japan, June 16, 1971, 46/42545
Int. Cl. H04b 1/16
U.S. Cl. 325—321 **4 Claims**

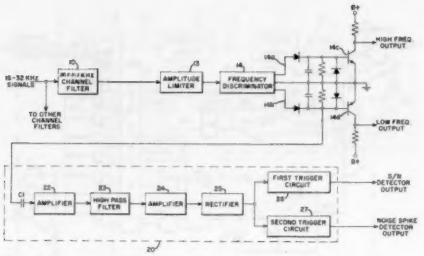


An equalizer of the preset type for a demodulated quadrature amplitude modulated signal comprises sampling means for simultaneously deriving a predetermined number, $2N+1$, of the unit impulse response characteristic samples $z(kT-hT)$ at each of sampling times kT [$z(t)$, a unit impulse response characteristic of complex amplitude; T, the code pulse interval; $t=0$, the time of occurrence of the greatest complex amplitude; k and $h=-N, \ldots, 0, 1, \ldots, N$], variable gain means for simultaneously deriving a plurality of amplitude varied signal samples $C_h \cdot z(kT-hT)$ at each of the sampling times kT, and adjusting means for adjusting the variable gains C_h with reference to the sampling times, the greatest complex amplitude, and the amplitude varied signal samples.

3,783,387
NOISE DETECTOR CIRCUIT

Andreas Wernli, Charlottesville, Va., assignor to General Electric Company, Lynchburg, Va.

Filed June 14, 1972, Ser. No. 262,537
Int. Cl. H04b 1/10
U.S. Cl. 325—348 4 Claims

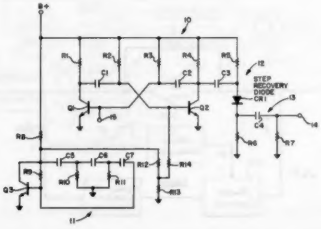


In a power-line carrier receiver having a discriminator that produces output signals in response to frequency-shift-keyed signals, a noise detector circuit is provided to squelch the receiver under certain noise conditions. The detector circuit uses two trigger circuits having a signal-to-noise ratio detector threshhold and a noise spike threshhold. If a low signal-to-noise ratio is detected, or if a noise spike is detected, the respective trigger circuit produces a signal to squelch or disable the receiver.

3,783,388
MULTIPLE CARRIER FREQUENCY MODULATED SIGNAL GENERATING APPARATUS

Donald E. Disinger, North Tonawanda, N.Y., assignor to GTE Sylvania Incorporated, Stamford, Conn.

Filed Jan. 20, 1972, Ser. No. 219,364
Int. Cl. H03b 21/00
U.S. Cl. 325—363 5 Claims

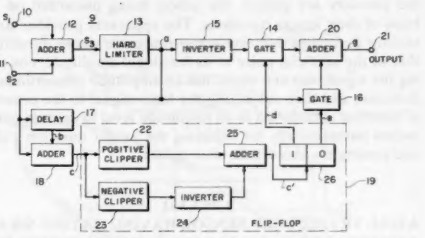


Signal generator for use in testing FM communication receivers including a triggered free-running multivibrator which may be synchronized to operate at a frequency equal to the spacing between adjacent channels of the FM receiver. An audio oscillator modulates the output of the multivibrator which output is applied to a step recovery diode. The output of the step recovery diode is a plurality of harmonics of the frequency of the multivibrator each frequency modulated at the frequency of the audio oscillator.

3,783,389
MEDIAN FREQUENCY GENERATOR

Frank S. Gutleber, Little Silver, N.J., assignor to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Continuation-in-part of Ser. No. 142,963, May 27, 1971. This application May 31, 1972, Ser. No. 258,273
Int. Cl. H03b 19/00
U.S. Cl. 328—15 4 Claims

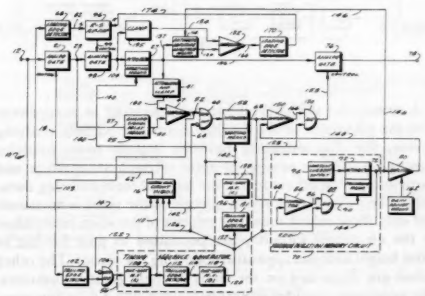


The median frequency generator linearly adds two input signals having the same amplitude to obtain a third signal having a frequency equal to the median of the frequencies of the two input signals, an amplitude which varies with time, and a phase which reverses at a frequency equal to the difference in the frequencies of the input signals. Timing pulses are generated by a flip-flop in synchronism with the phase reversals and are used as gating signals to invert the phase reversed portions of the third signal to produce the median frequency output signal.

3,783,390
AXIAL TRAJECTORY SENSOR HAVING GATING MEANS CONTROLLED BY PULSE DURATION MEASURING FOR ELECTRONIC PARTICLE STUDY APPARATUS AND METHOD

Walter R. Hogg, 15930 Dornock Round, Miami Lakes, Fla.

Continuation-in-part of Ser. Nos. 84,440, Oct. 27, 1970, and Ser. No. 101,325, Dec. 24, 1970. This application Feb. 9, 1971, Ser. No. 113,920
Int. Cl. H03k 5/20; G01n 27/00
U.S. Cl. 328—111 49 Claims



A sensor for use with apparatus operating in accordance with the principles of the Coulter electronic particle studying device, for differentiating between particles passing on axial or near axial paths through an aperture and particles passing off center. The duration of each particle pulse produced by a particle passing through the aperture is measured at some fraction of the amplitude of an artificial pulse produced in the apparatus and only those particle pulses whose thus-measured durations meets the criterion of duration established by the

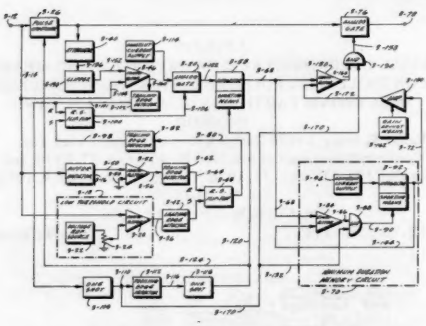
electronic circuitry are permitted to pass for use in pulse height analysis following the sensor. Each artificial pulse is produced from each particle pulse by choosing as the amplitude of said artificial pulse the amplitude of the particle pulse at substantially the instant that the particle causing the same is halfway through the aperture of the particle studying device, and for this purpose electronic circuitry is provided for finding the center of the particle pulse. This is done for all particle pulses, irrespective of their durations, but only pulses which have durations that meet the criterion established by the circuitry are passed, the others being discarded on the basis of their longer durations. The apparatus provides structure for deriving a duration-measuring pulse whose duration is that of the artificial pulse at its fractional amplitude, converting the signal into one which has an amplitude proportional to duration, and then subjecting the latter signal to the criterion of duration established as an amplitude level to operate gating means automatically for rejecting the longer duration pulses and passing the shorter duration pulses.

3,783,391

AXIAL TRAJECTORY SENSOR HAVING GATING MEANS CONTROLLED BY PULSE DURATION MEASURING FOR ELECTRONIC PARTICLE STUDY APPARATUS AND METHOD

Walter R. Hogg, and Wallace H. Coulter, both of Miami Springs, Fla., assignors to Coulter Electronics, Inc., Hialeah, Fla.

Filed Feb. 8, 1971, Ser. No. 113,165
Int. Cl. H03k *5/20*
U.S. Cl. 328—111 **36 Claims**



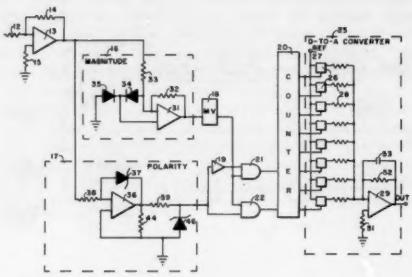
A sensor for use with apparatus operating in accordance with the principles of the Coulter electronic particle studying device, for discriminating between signals from particles passing on axial or near axial paths through an aperture and particles passing off center on the basis of their differing durations. The pulse duration of a portion of the pulse is measured and only those which meet the criteria of duration established by the electronic circuitry are permitted to pass for use in pulse height analysis apparatus following the sensor. The other pulses are discarded on the basis of their greater durations. The apparatus provides structure for deriving a duration-measuring pulse whose duration extends in one case from the peak of a particle pulse to a fractional amplitude thereof, and in another case from the time of maximum slope of the leading edge to the time of maximum slope of the trailing edge. In each case the duration-measuring pulse is converted into a signal which has an amplitude proportional to duration and the latter signal is compared with a certain maximum signal level to operate gating means for rejecting the longer duration pulses and passing the shorter duration ones. Multiple peak pulses are also discarded by means of suitable circuitry.

3,783,392

LONG PERIOD INTEGRATOR

Daniel D. Drake, Riverdale; Evan E. M. Lloyd, Columbia, and Richard F. Norris, Rockville, all of Md., assignors to The Singer Company, Binghamton, N.Y.

Filed Apr. 7, 1972, Ser. No. 242,165
Int. Cl. G06g *7/18*
U.S. Cl. 328—127 **2 Claims**



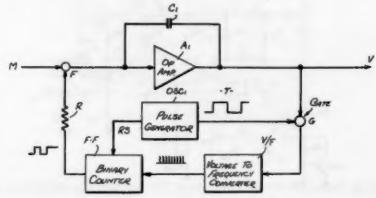
The device of this invention is an integrator which can operate properly in a wide variety of situations, and particularly in those situations where the input to the integrator may be relatively constant for long periods of time. The integrator of this invention provides means for separating the incoming signals into a magnitude indication and a polarity indication. The magnitude indication is used to control the frequency of a voltage controlled oscillator whose output is supplied to the input of a reversible counter. The polarity indication is used to determine the direction in which the counter counts. The contents of the counter at any instant is converted into an analog quantity by a digital-to-analog converter.

3,783,393

DRIFT-COMPENSATED ANALOG HOLD CIRCUIT

Hiroshi Kakiura, Yokohama, Japan, assignor to Fischer & Porter Company, Warminster, Pa.

Filed May 25, 1972, Ser. No. 256,946
Claims priority, application Japan, May 31, 1971, 46/37057
Int. Cl. G06g *7/18*; **H03k** *5/00*
U.S. Cl. 328—127 **1 Claim**

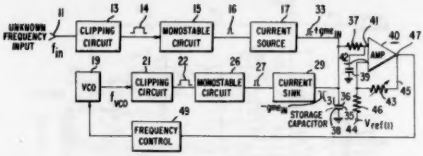


An analog integral hold circuit adapted to provide a control signal to the valve of a process control system in order to hold the valve position, the circuit being drift free. The drift-free circuit is constituted by an analog hold circuit having integrating characteristics, the output thereof being converted into digital signals that are counted by a variation-detecting circuit. The output of the variation detecting circuit is applied to a feedback circuit that delivers a compensating signal to the input of the analog hold circuit to obviate drift effects.

3,783,394
FREQUENCY COMPARATOR SYSTEM

Leslie Ronald Avery, Byfleet, England, assignor to RCA Corporation, New York, N.Y.

Filed Nov. 19, 1971, Ser. No. 200,543
Int. Cl. H03b 3/04
U.S. Cl. 328—134 6 Claims

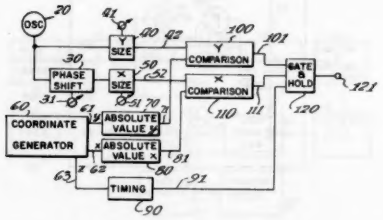


Input frequency signal wave energy and the signal wave energy from a variable frequency oscillator are each squared and applied to separate monostable multivibrators. The output pulses from that multivibrator responsive to the input frequency signal wave energy are compared to the output pulses from that multivibrator coupled to the variable frequency oscillator. A resultant difference reflects the difference between the input frequency and the variable frequency oscillator frequency.

3,783,395
ANALOG WINDOW FOR SCINTILLATION CAMERA

Oreste J. Lucchesi, Schaumburg, Ill., assignor to G. D. Searle & Co., Chicago, Ill.

Division of Ser. No. 835,534, June 23, 1969, Pat. No. 3,655,974. This application June 7, 1971, Ser. No. 150,779
Int. Cl. G01t 1/20; H03k 5/20
U.S. Cl. 328—147 10 Claims

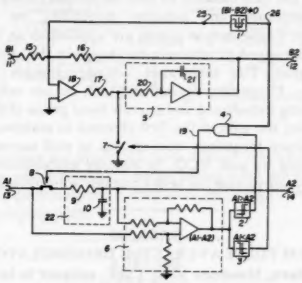


Analog window apparatus for use with Anger-type scintillation camera or the like. Two phase-related sinusoidal waveforms of the same frequency determine an analog window of a shape dependent upon the phase relationship. Two comparison circuits receive coordinate signals and the sinusoidal waveforms and register output indications when the amplitudes of the waveforms exceed the amplitudes of corresponding coordinate signals and a gate and hold circuit registers an output when coincident output indications are received at some instant during a comparison period lasting at least one period of the waveforms.

3,783,396
SIGNAL TRANSMITTAL CONTROL CIRCUIT

Carl Martin Wawra, Bensheim-Auerbach, and Ivan Chudey, Ober-Ramstadt, both of Germany, assignors to Carl Schenck Maschinenfabrik GmbH, Darmstaat, Germany

Filed Mar. 8, 1972, Ser. No. 232,723
Claims priority, application Germany, Feb. 21, 1972, P 22 07 993.2
Int. Cl. H03k 5/18; H03b 3/02
U.S. Cl. 328—151 10 Claims

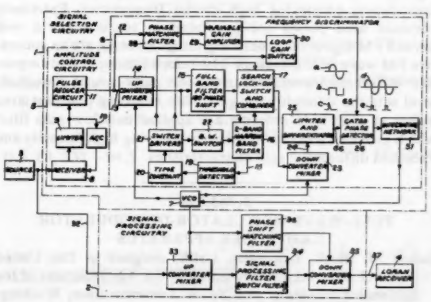


The present circuit arrangement controls the transmitting of signals, for example, rated control signals, in accordance with predetermined transmittal requirements as represented by the signals to be transmitted, for example, by their amplitudes. For this purpose a signal path is provided for each signal between respective input and output terminals. Switching means in each signal path controlled by signal responsive control means are provided to block or close the respective signal path in accordance with the instantaneous transmittal requirement.

3,783,397
SELECTION AND PROCESSING SYSTEM FOR SIGNALS, INCLUDING FREQUENCY DISCRIMINATOR

Milton Dishal, Upper Montclair, and Henri Baran, Parsippany, both of N.J., assignors to International Telephone and Telegraph Corporation, Nutley, N.J.

Division of Ser. No. 763,225, Sept. 27, 1968. This application June 14, 1971, Ser. No. 153,087
Int. Cl. H03d 3/24
U.S. Cl. 329—110 9 Claims



A signal selection and processing system for use with a broadband LORAN receiver in which the average of the strongest interfering signal having a predetermined duty cycle sets the AGC level and, via a special frequency discriminator,

controls the frequency of a voltage controlled oscillator (V-CO). The VCO output is used to shift the entire band of input frequencies so that said strongest signals fall into the attenuating notch of a notch filter while passing the other signals to the LORAN receiver.

In said discriminator, signals are transmitted through one channel in which a certain phase shift is produced and a second channel which also produces the same phase shift plus an additional phase shift which varies 180° over the band of interest. Gating pulses are derived from the phase shifted signals in the second channel and gate out different portions of tbe signals in the first channel so that the output pulses are of different amplitude and polarity, depending on the input frequency. These output pulses are applied to an integrating network arranged to maintain its charge in the absence of an input signal. The integrated voltage controls the VCO frequency. Frequency search and lock-on are accomplished by switching broadband and narrow band phase shifting filters and varying the gain in the first channel to maintain stability. Up-and-down frequency conversions in said second channel are effected by said VCO. In another embodiment a single frequency conversion for both channels is employed.

3,783,398

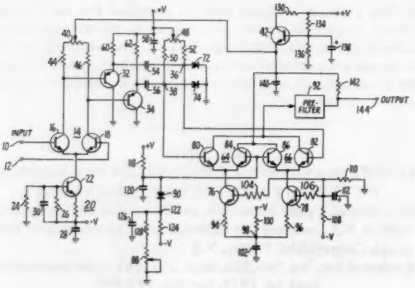
FM PULSE AVERAGING DEMODULATOR

Bert H. Dann, Mountain View, Calif., assignor to International Video Corporation, Sunnyvale, Calif.

Filed Sept. 1, 1972, Ser. No. 285,924

Int. Cl. H03d *3/18*; H03k *5/08*

U.S. Cl. 329—50 **6 Claims**



An FM pulse averaging demodulator particularly useful in high quality broadcast television video tape recorders and reproducers employing high carrier frequencies. Extremely constant area pulses are generated in response to a well limited FM signal by generating ramps in response to successive FM wave zero crossings. The ramps are applied to respective differential comparator/clipper pairs whose threshold level sets the demodulator gain. The resulting constant area pulses at each zero crossing are applied to a low pass filter which provides a demodulated signal having high linearity and excellent differential gain characteristics.

3,783,399

FULL-WAVE MOD ULATOR-DEMODULATOR AMPLIFIER APPARATUS

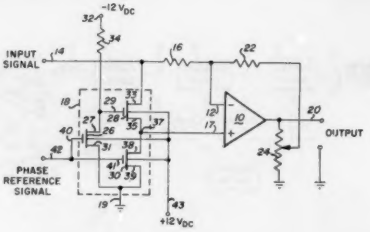
James M. Black, Lancaster, Calif., assignor to The United States of America as represented by the Administrator of the National Aeronautics and Space Administration, Washington, D.C.

Filed July 13, 1971, Ser. No. 162,100

Int. Cl. H03f *1/02*

U.S. Cl. 330—9 **4 Claims**

Full-wave modulator-demodulator apparatus including an operational amplifier having a first input terminal coupled to a circuit input terminal, and a second input terminal alternately coupled to the circuit input terminal and a circuit ground by a switching circuit responsive to a phase reference signal whereby the operational amplifier is alternately switched between a noninverting mode and an inverting mode. The



switching circuit includes three field-effect transistors operatively associated to provide the desired switching function in response to an alternating reference signal of the same frequency as an AC input signal applied to the circuit input terminal.

3,783,400

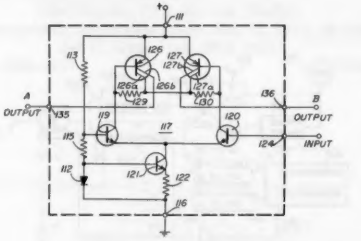
DIFFERENTIAL CURRENT AMPLIFIER

Michael J. Gay, Scottsdale, Ariz., assignor to Motorola, Inc., Franklin Park, Ill.

Continuation of Ser. No. 149,466, June 3, 1971, abandoned. This application Dec. 1, 1972, Ser. No. 311,405

Int. Cl. H03f *3/68*

U.S. Cl. 330—30 D **9 Claims**

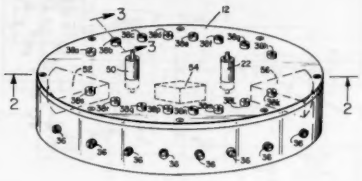


A differential current amplifier suitable for realization in monolithic integrated circuit form includes a pair of input transistors supplied with differential current at the bases thereof. The emitters of the transistors are interconnected, as are the collectors, and feedback resistors are connected between the collectors and the bases of the respective transistors. A pair of output transistors have the bases coupled in common with the bases of the input transistors and the emitters connected in common with the emitters of the input transistors, so that the collectors of the output transistors then provide a differential output current in accordance with differential input current supplied to the bases of the input transistors.

3,783,401
MEANS AND METHOD FOR SUPPRESSING MICROWAVE RESONANCE IN ELLIPTICAL CAVITIES

Henry G. Oltman, Jr., Woodland Hills, Calif., assignor to Hughes Aircraft Company, Culver City, Calif.

Filed Mar. 3, 1972, Ser. No. 231,664
Int. Cl. H03f 3/60
U.S. Cl. 330—56 14 Claims

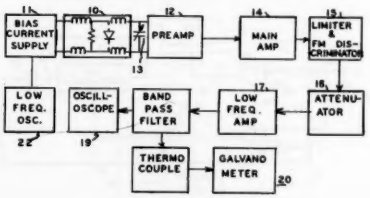


Means and method for suppressing resonant modes in a substantially right cylindrical elliptical cavity by suppressing the transmission of microwave energy perpendicular to the major axis of the cavity.

3,783,402
JOSEPHSON JUNCTION AMPLIFIER

Aldert Van Der Ziel, Minneapolis, and Hyun Mook Choe, St. Paul, both of Minn., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed June 28, 1972, Ser. No. 266,910
Int. Cl. H03f 15/00
U.S. Cl. 330—61 R 10 Claims



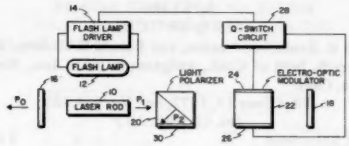
The invention disclosed herein utilizes the Josephson tunneling effect to provide an amplifier having unique characteristics.

The Josephson tunneling effect relates to a supercurrent flow thru a thin barrier between two superconductors by quantum mechanical tunneling of electron pairs; in other words, current can flow with no voltage applied between the superconductors. The dc quantum interference effect can produce thru the use of an external magnetic field a large change in barrier current by tunneling and is used herein to produce an amplifier.

3,783,403
DOUBLE PULSE LASER

William R. Hook, Los Angeles; Ronald P. Hilberg, Redondo Beach, and Roland H. Dishington, Pacific Palisades, all of Calif., assignors to TRW Inc., Redondo Beach, Calif.

Filed Sept. 22, 1972, Ser. No. 291,203
Int. Cl. H01s 3/10
U.S. Cl. 331—94.5 5 Claims

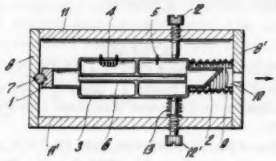


Double pulses are produced from a single laser by generating two successive optical pumping pulses from the same flash lamp and Q-switching once after each pumping pulse prior to the next pumping pulse.

3,783,404
GAS LASER

Tohru Matsuoka, Tokyo, Japan, assignor to Nippon Electric Company, Limited, Tokyo, Japan

Filed Dec. 20, 1971, Ser. No. 210,067
Claims priority, application Japan, Dec. 18, 1970, 45-1113123
Int. Cl. H01s 3/08
U.S. Cl. 331—94.5 5 Claims

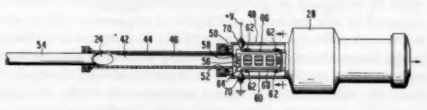


A gas laser comprises a gas laser tube, an inner mirror having a fixed position within the tube, an outer mirror disposed outside the tube, and a side plate. The tube is pivotally coupled to the side plate. The tube is supported and prevented from moving pivotally whereby the angle of the inner mirror with respect to the outer mirror is adjusted.

3,783,405
LASER HAVING MEANS FOR DEFOGGING THE OPTICAL CAVITY THEREOF

Nubar S. Manoukian, San Jose, Calif., assignor to Coherent Radiation, Palo Alto, Calif.

Filed Feb. 4, 1972, Ser. No. 223,602
Int. Cl. H01s 3/22
U.S. Cl. 331—94.5 15 Claims



In a laser, having a lasing medium and having an optical resonator and wherein there is a space or cavity between the

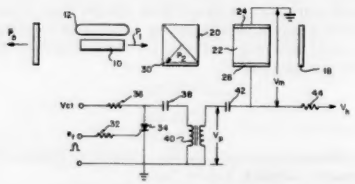
lasing medium and the mirrors forming the optical resonator, means is provided for removing contamination particles, such as dust and fog from the cavity region in the path that the reflected coherent light beam passes. This is accomplished by providing a radioactive source for electrostatically charging the contamination particles and then removing the charged particles from the path of the light beam by, for example, an electrical field.

3,783,406

LASER Q-SWITCHING

William R. Hook, Los Angeles, and Ronald P. Hilberg, Redondo Beach, both of Calif., assignors to TRW Inc., Redondo Beach, Calif.

Filed June 19, 1972, Ser. No. 264,153
Int. Cl. H01s *3/12*
U.S. Cl. 331—94.5 **5 Claims**



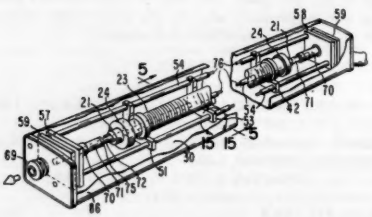
A transformer-driven electro-optic Q-switching arrangement reduces the high-voltage switching requirements with greatly simplified circuitry. Lasing efficiency is not significantly reduced even when the transformer rise time is twice as long as the laser pulse build-up time.

3,783,407

IMPROVED LASER OPTICAL RESONATOR

Wayne S. Mefferd, and James L. Hobart, both of Palo Alto, Calif., assignors to Coherent Radiation Laboratories, Palo Alto, Calif.

Continuation of Ser. No. 842,956, July 18, 1969, abandoned. This application Sept. 26, 1972, Ser. No. 292,343
Int. Cl. H01s *3/02*
U.S. Cl. 331—94.5 C **18 Claims**



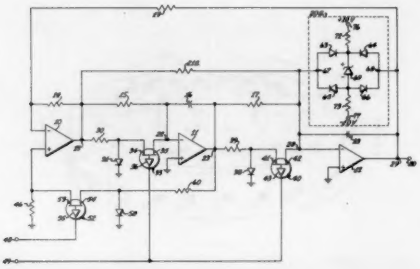
The reflectors in a laser are mounted in precise axial alignment by means of an elongated mounting structure made of a material of low thermal coefficient of expansion which serves to prevent reflector misalignment due to temperature changes in the laser, the elongated mounting structure also including an associated member made of a material of high thermal conductivity which serves to direct heat away from the elongated mounting structure along the length, further reducing any temperature effects thereon. In addition, a kinematic mounting structure is provided for further enhancing the alignment stability characteristics of the plasma tube and resonator structure.

3,783,408

LOW FREQUENCY OSCILLATOR CIRCUIT

David A. Bird, Phoenix, Ariz., assignor to Honeywell Information Systems Inc., Waltham, Mass.

Filed June 30, 1972, Ser. No. 267,828
Int. Cl. H03b *5/20*
U.S. Cl. 331—135 **10 Claims**



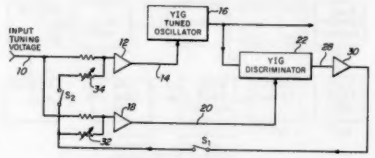
First, second and third inverting amplifiers and a pair of integrators are connected to form an RC oscillator circuit which uses field effect transistors to switch the value of the resistors that determine the frequency of oscillation of the circuit. The circuit uses limiter networks to regulate the amplitude of the signal being generated and to prevent distortion of the signal.

3,783,409

SYSTEM FOR LINEARIZING INHERENTLY NONLINEAR CIRCUITS

Lawrence L. Polson, Jr., Los Altos, Calif., assignor to Itek Corporation, Lexington, Mass.

Filed Apr. 12, 1973, Ser. No. 350,673
Int. Cl. H03b *3/04*
U.S. Cl. 331—177 R **4 Claims**

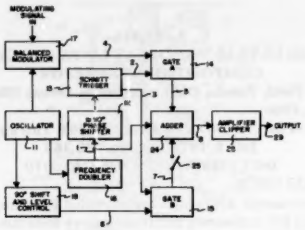


A system for allowing an inherently nonlinear, YIG tuned oscillator to respond linearly to an input signal. The output of the oscillator is directed to a YIG tuned discriminator which is tuned to its center frequency by the same input signal utilized to tune the oscillator. The discriminator is selected to have a nonlinear response which is proportional to, but not equal to, the nonlinear response of the oscillator. The output of the discriminator is utilized in a first feed back loop to drive the center frequency of the discriminator toward the oscillator frequency. The discriminator output signal is also proportional to the inherent oscillator nonlinearity, and is utilized in a second feed back loop to drive the oscillator toward a linear response to the input signal.

3,783,410
WAVEBORN EDGE-SHIFTING MODULATION SYSTEM FOR VIDEO RECORDING AND REPRODUCTION

George Bruck, Riaz, Switzerland, assignor to Avco Corporation

Filed Jan. 7, 1972, Ser. No: 216,031
Int. Cl. H03k 7/08; G11b 5/06
U.S. Cl. 332—9 R 12 Claims

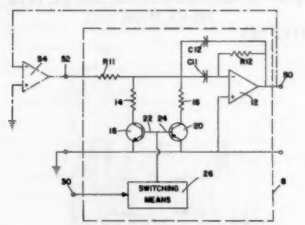


A modulation system for generating a train of substantially rectangular pulses, the trailing edges of alternate pulses being delayed by an amount proportional to a modulating signal and the trailing edges of the remaining pulses being advanced by an amount similarly proportional to the modulating signal, in order to provide an output signal in which the carrier and even order sidebands are suppressed and the odd order sidebands have amplitudes given by the odd order Bessel functions of the first kind with arguments dependent on the index of modulation. Optionally, a carrier signal component can be injected into the output signal in a controlled amount independent of the modulating signal by delaying the leading edges of alternate pulses by a predetermined constant amount and advancing the leading edges of the remaining pulses by the same amount.

3,783,411
CONTINUOUSLY VARIABLE OSCILLATOR AND FREQUENCY MODULATOR

Ross C. Libby, 236 W. Main St., West Jefferson, Ohio

Filed Oct. 30, 1972, Ser. No. 301,745
Int. Cl. H03b 3/04, 5/20; H03k 7/10
U.S. Cl. 332—9 R 13 Claims

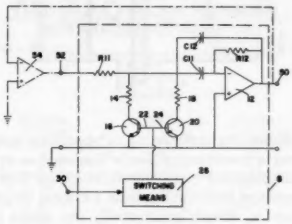


A method and circuits are disclosed for permitting a pair of discrete circuit elements to operate as a continuously variable circuit element. The pair of elements, preferably resistances, are alternatively, periodically switched into connection and disconnection in a circuit at a rate substantially greater than the operative frequency of the circuit. The effective value of the switched elements depends upon their relative connection time. A continuously variable filter comprises an active filter in which the frequency determining resistance element is such a switched discrete pair of resistances. The addition of a regenerative feedback loop to such a filter provides a continuously variable oscillator. The further addition of a pulse width modulator to the oscillator, for alternatively switching the discrete resistances in response to an input signal provides a frequency modulator.

3,783,412
ACTIVE BAND PASS FILTER HAVING CONTINUOUSLY VARIABLE PASS BAND

Ross C. Libby, West Jefferson, Ohio, assignor to MI , Inc., Columbus, Ohio

Filed Oct. 30, 1972, Ser. No. 301,750
Int. Cl. H03h 7/10; H03f 1/38; H03k 7/00
U.S. Cl. 332—9 R 6 Claims

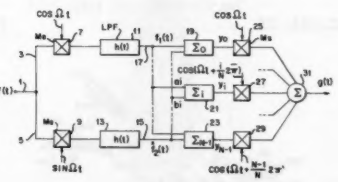


A method and circuits are disclosed for permitting a pair of discrete circuit elements to operate as a continuously variable circuit element. The pair of elements, preferably resistances, are alternatively, periodically switched into connection and disconnection in a circuit at a rate substantially greater than the operative frequency of the circuit. The effective value of the switched elements depends upon their relative connection time. A continuously variable filter comprises an active filter in which the frequency determining resistance element is such a switched discrete pair of resistances. The addition of a regenerative feedback loop to such a filter provides a continuously variable oscillator. The further addition of a pulse width modulator to the oscillator, for alternatively switching the discrete resistances in response to an input signal provides a frequency modulator.

3,783,413
N PATH FILTER HAVING TWO INPUT AND N OUTPUT PATHS

Jean C. Froment, Villeneuve Loube, and Jean L. Monrolin, Tourette/sur/Loup, both of France, assignors to International Business Machines Corporation, Armonk, N.Y.

Filed May 10, 1972, Ser. No. 252,042
Claims priority, application France, May 19, 1971, 7119836
Int. Cl. H03c 3/00; G01r 23/16
U.S. Cl. 332—23 9 Claims

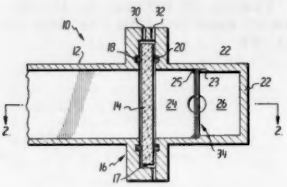


An N path filter where signals are applied to two orthogonal input paths and where the modulated and filtered signals from the input paths are combined and applied to each of the N equiphase output paths, the signals on each output path being suitably modulated, the filter output signal being formed from the algebraic sum of the modulated N output path signals. A pulse approximation to sinusoidal modulating signals is also disclosed.

3,783,414
LIQUID DIELECTRIC COOLED TERMINATIONS

Gerald I. Klein, Baltimore, and Edward R. Mittelman, Silver Spring, both of Md., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Feb. 6, 1973, Ser. No. 330,156
Int. Cl. H01p *1/26*
U.S. Cl. 333—22 F **9 Claims**

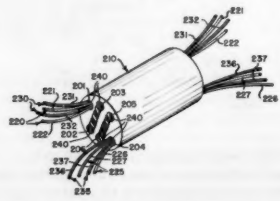


A termination for terminating or absorbing a signal transmitted along a transmission line is disclosed as comprising a short circuit disposed across the transmission line and a thin film of a resistive material disposed a critical length from the short circuit to absorb substantially the signal transmitted along the transmission line. A cooling chamber is formed about the thin film and a cooling liquid of given dielectric constant and relatively low microwave loss is directed through said cooling chamber to remove the heat absorbed by the thin film. A window is disposed across the transmission line to form the cooling chamber. The cooling liquid of given dielectric constant acts as a matching transformer to reduce the impedance seen by a wave propagated along the transmission line. The resistivity or impedance of the thin film is selected to be substantially equal to that of the transformed impedance effected by the cooling liquid. To establish the desired matching transformer, the spacing between the window and the resistive film is selected to be an odd integral multiple of one-fourth the wavelength of a signal as transmitted through the cooling liquid. Further, to ensure that the resistive film absorbs substantially the energy of the signal transmitted along the transmission line, the aforementioned critical distance is selected to be an odd integral multiple of one-fourth the wavelength of the signal as transmitted through the cooling medium. The given dielectric constant of the cooling medium in turn determines the wavelength of a signal transmitted therethrough, and therefore the spacings between the window and the resistive film, and the resistive film and the short circuit.

3,783,415
TRANSFORMER

Sulo Koskinen, Burnaby, British Columbia, Canada, assignor to The Anaconda Company, New York, N.Y.

Filed Apr. 19, 1972, Ser. No. 245,495
Int. Cl. H03h *7/38, 7/42*
U.S. Cl. 333—25 **11 Claims**



A transformer is described comprising a body of ferromagetic material and first and second conducting means that are wrapped around or pass through the ferromagnetic body. Each said conducting means comprises a plurality of insulated wires that are twisted together and doped with a high dielectric constant material in the region adjacent the ferromagnetic body. By this arrangement, an impedance transforming device is provided that has excellent broadband characteristics over several octaves in the radio frequency region and also has extremely low output impedance levels. Consequently, this device is suitable for matching the input impedance levels of transistor amplifiers.

3,783,416
SOLID ULTRASONIC DELAY LINES AND GLASS COMPOSITIONS THEREFOR

Marshall Field, Toledo, Ohio, assignor to Owens Illinois, Inc., Toledo, Ohio

Division of Ser. No. 887,264, Dec. 22, 1969. This application July 6, 1971, Ser. No. 160,164
Int. Cl. H03h *7/30;* **C03c** *3/30, 3/10*
U.S. Cl. 333—30 R **4 Claims**

Solid ultrasonic delay lines are provided including an input transducer for converting electrical energy to acoustical energy, an output transducer for converting the acoustical energy to electric energy, and a glass delay line medium located therebetween as a delay line, the glass having a composition comprising the following ingredients in approximate molar amounts:

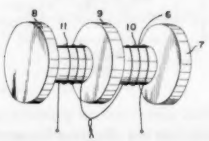
Ti Ingredients	*Tn Moks*
Sio_2	3.55 to 6.0
$A1_2O$	1
RO	1

where R is a divalent metal such as magnesium, cadmium and lead.

3,783,417
INDUCTANCE COIL

Hisasi Osada, and Tadaharu Akino, both of Tokyo, Japan, assignors to TDK Electronic Company, Tokyo, Japan

Division of Ser. No. 102,596, Dec. 30, 1970, abandoned. This application Aug. 9, 1972, Ser. No. 279,072
Claims priority, application Japan, Jan. 14, 1970, 45/4315
Int. Cl. H03h *7/32*
U.S. Cl. 333—70 S **6 Claims**

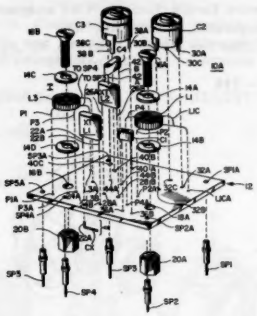


An inductance coil is disclosed having a core with flanges at both ends thereof. A partition wall is provided at an intermediate part of the core so as to form at least two separate coil winding spaces on the core between the two end flanges and the partition wall. The coil winding spaces are exactly the same width and windings are provided in the winding spaces with exactly the same number of turns.

3,783,418
CRYSTAL FILTERING DEVICE

Clyde S. Redwine, Longwood, Fla., assignor to Johnson Electronics, Inc., Casselberry, Fla.

Filed Jan. 4, 1973, Ser. No. 320,849
Int. Cl. H03h 7/08, 7/10, 9/00
U.S. Cl. 333—70S 4 Claims

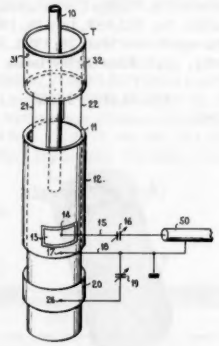


An IF crystal filter for frequency modulation receivers of the SCA (Subsidiary Communication Authorization) type, which receive signals utilizing relatively high modulating frequency subcarriers, is provided which includes, on a single circuit card, a phase splitter across its input terminals providing first and second signals of equal amplitude and opposite phase to an output resonant circuit tuned to a given center frequency through first and second resonant crystals, respectively, one resonant above and one resonant below that center frequency in equal amounts.

3,783,419
RESONATOR FOR GYROMAGNETIC-RESONANCE SPECTROMETER

Christian Lafond, Orsay, and Jean Jacques Dunand, Paris, both of France, assignors to Thomson CSF, Paris, France

Filed May 12, 1972, Ser. No. 252,748
Claims priority, application France, June 7, 1971, 7120418
Int. Cl. H01p 7/02, 7/04, 5/04
U.S. Cl. 333—82 A 5 Claims

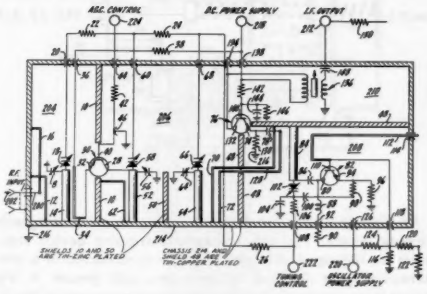


In order to avoid disturbing the tuning of a resonator, formed by an essentially capacitive line and an essentially inductive Lecher line connected in series, when the sample is introduced into the resonator, the capacitive line is a coaxial line section, the inner conductor of which forms a shield against the electric field due to this line. Alternately the first capacitive line also is Lecher line but a metal tube protects the space containing the sample from the electric field due to this line.

3,783,420
METHOD FOR COUPLING AND BANDPASS CONTROL IN UHF VARACTOR TUNERS

Elmer Bastian, Union, Ill., assignor to Oak Industries, Inc., Crystal Lake, Ill.

Filed Nov. 20, 1972, Ser. No. 308,009
Int. Cl. H03j 3/02; H01p 7/00
U.S. Cl. 334—39 10 Claims

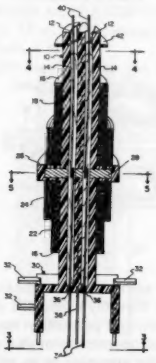


A method for optimizing coupling and bandpass control in UHF varactor tuners by using two or more types of plating materials.

3,783,421
PRINTED WIRING CARD MOUNTABLE REED SWITCH

Sigitas Miknaitis, Chicago, Ill., assignor to GTE Automatic Electric Laboratories Incorporated, Northlake, Ill.

Filed Dec. 4, 1972, Ser. No. 311,999
Int. Cl. H01h 67/30
U.S. Cl. 335—152 6 Claims



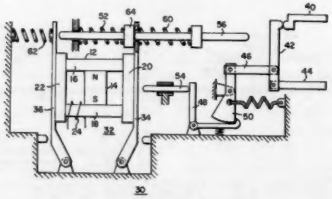
A magnetic latching reed switch is provided with an improved bobbin having a plurality of coil terminals disposed in

a bottom flange or base. On terminal of each reed capsule inserted in the bobbin extends beneath the base and the other is welded to a return strap which also extends through the base such that the switch terminals and coil terminals are adapted to engage a corresponding pattern of apertures in a printed wiring car. A plurality of reed switches are thus supported by the wiring card which also provides all internal switch wiring.

3,783,422
CIRCUIT BREAKER TRIPPING DEVICE OPERABLE FROM A LOW ENERGY TRIPPING SIGNAL

John H. Taylor, Pittsburgh, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Sept. 25, 1972, Ser. No. 292,211
Int. Cl. H01h *9/20*
U.S. Cl. 335—174 **6 Claims**

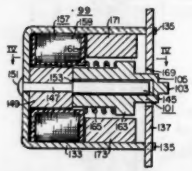


An electric circuit breaker comprising an electromagnetic tripping device. The electromagnetic tripping device comprises an H-shaped structure which is constructed of a permanent magnet disposed between two pole pieces. A trip keeper is releasably held to the pole faces on one end of the H-shaped structure and a reset keeper is movably held to the pole faces at the other end of the H-shaped structure. A winding means encircles one leg of the H-shaped structure and when energized bucks the flux through the magnetic path closed by the trip keeper and boosts the flux through the reset keeper so as to release a trip arm and trip the circuit breaker.

3,783,423
CIRCUIT BREAKER WITH IMPROVED FLUX TRANSFER MAGNETIC ACTUATOR

Alfred E. Mater, Beaver Falls, and John A. Wafer, Monroeville, both of Pa., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Jan. 30, 1973, Ser. No. 327,964
Int. Cl. H01h *9/20*
U.S. Cl. 335—174 **7 Claims**

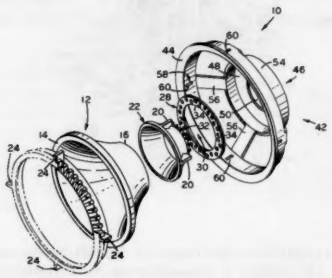


A circuit breaker comprises a magnetic trip actuator comprising an armature movably supported on a stationary nonmagnetic support pin, and permanent magnet means supplying magnetic flux that operates through a magnetic supporting frame to maintain the armature in an initial position. When released, the armature moves in an opening in the frame to actuate the breaker mechanism to trip the breaker. Upon movement of an operating handle structure to a reset position to reset the mechanism of the circuit breaker, the handle structure engages a pivoted reset member to move the reset member against the armature to thereby reset the armature in the initial position.

3,783,424
TOROIDAL YOKE FOR TELEVISION CATHODE RAY TUBE

Charles Edward Torsch, Geneva, N.Y., assignor to GTE Sylvania Incorporated, Seneca Falls, N.Y.

Filed Nov. 16, 1972, Ser. No. 307,027
Int. Cl. H01f
U.S. Cl. 335—210 **5 Claims**



A deflection yoke for a cathode ray tube comprises a hollow, substantially frusto-conical core having a plurality of coils toroidally wound thereabout. The coils have terminations to which connections will be made. A plurality of first projections are formed on the core and are circumferentially distributed thereabout between the ends of the core. A plurality of second projections are formed on the wide end of the core and are also circumferentially spaced thereabout. An annular terminal board for receiving the coil terminations is fitted over the narrow end of the core and is provided with slots for engaging the first projections. A protective housing having a shape roughly corresponding to the core is fitted over the terminal board and at its forward end is provided with slots which engage the second projections.

3,783,425
BOBBIN COIL

Martinus Johannes Van Hirtum, and Wilhelmus Leonard Louis Lenders, both of Emmasingel, Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

Division of Ser. No. 853,058, July 26, 1969, Pat. No. 3,634,164. This application Mar. 26, 1971, Ser. No. 128,542
Claims priority, application Netherlands, Aug. 31, 1968, 6812445
Int. Cl. H01f *27/30*
U.S. Cl. 336—189 **1 Claim**

A coil which forms a dry and firmly coherent unit immediately after the winding process made by winding the coil

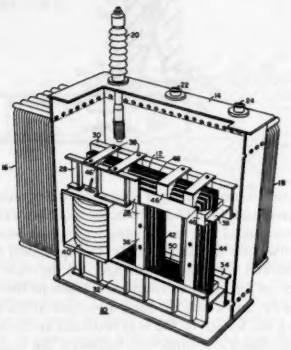
from wire which has previously been provided with a dry layer of a contact adhesive, with the result that the wire becomes firmly fixed as soon as it contacts the previously wound part of the coil.

3,783,426

ELECTRICAL INDUCTIVE APPARATUS HAVING RIGID FOAM SUPPORTING MEMBERS AND METHODS OF PROVIDING SAME

Louis Morris, Jr., Campbell; Donald R. Slanina, Youngstown, both of Ohio, and Martin P. Seidel, Monroeville, Pa., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Jan. 9, 1973, Ser. No. 322,237
Int. Cl. H01f *27/30*
U.S. Cl. 336—196 **11 Claims**



A power transformer having rigid plastic foam support blocks and rods. A support block located between the magnetic core and the core supporting structure is formed by injecting a plastic foam material into an expandable container and forming the container of foam in a mold located in the transformer where the molded support block is to remain. The foam expands and then solidifies when the block has the proper shape. A support rod located between the magnetic core and the winding structure disposed thereon is constructed by placing a flexible, substantially non-expandable tubular member between the core and the winding structure, injecting a plastic foam material into the tubular member, and allowing the foam material in the tubular member to expand and force the tubular member tightly against the core and the winding structure.

3,783,427

LAYER WINDING FOR ELECTRICAL APPARATUS

Uno Zetterlund, Ludvika, Sweden, assignor to Allmanna Svenska Elektriska Aktiebolaget, Vasteras, Sweden

Filed Nov. 23, 1971, Ser. No. 201,356
Claims priority, application Sweden, Nov. 23, 1970, 15807/70
Int. Cl. H01j *27/32*
U.S. Cl. 336—206 **2 Claims**

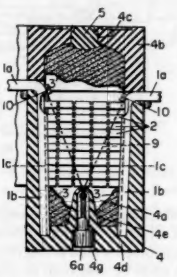
In widing a conductor winding for electrical apparatus on a support, the conductor and an insulated tape of greater width than the conductor are simultaneously wound on the support. The tape is wound with a greater pitch than the pitch of the conductor so that the tape reaches the end of the layer sooner than the conductor. The tape is then wound with zero pitch until the conductor reaches the end of the layer, thus forming edge supports for the winding of twice the thickness of the conductor. The pitch of the tape on the next layer is abruptly increased from zero to a value greater than the pitch of the conductor, and from an intermediate point in the layer at which the conductor overlies the tape, the pitch of the tape is decreased so as to build up a body of insulation layer of greater thickness at the end of the layer.

3,783,428

LOW-VOLTAGE FUSE WITH BLOWN FUSE INDICATOR

Kenneth W. Swain, and Richard A. Belcher, both of Hampton Falls, N.H., assignors to The Chase-Shawmut Company, Newburyport, Mass.

Filed Oct. 28, 1971, Ser. No. 193,302
Int. Cl. H01h *85/30*
U.S. Cl. 337—148 **7 Claims**



A low-voltage fuse has a molded insulating casing of a synthetic resin and a blown fuse indicator is installed in the casing's front wall. The spring biased plunger of the indicator is of electric insulating material and has an axially outer cylindrical portion of relatively large and an axially inner cylindrical portion of relatively small diameter. The former is arranged in an aperture having a relatively large inner diameter formed in the aforementioned front wall, and the latter is arranged in a hollow projection inside the housing coaxial with the indicating plunger having a relatively small inner diameter.

3,783,429

TEMPERATURE ACTUATED CONNECTOR

Richard F. Otte, Los Altos, Calif., assignor to Raychem Corporation, Menlo Park, Calif.

Filed June 21, 1972, Ser. No. 264,782
Int. Cl. H01h *37/46*
U.S. Cl. 337—393 **12 Claims**

A temperature actuated device is disclosed which is capable of movement with a change in temperature of at least a por-

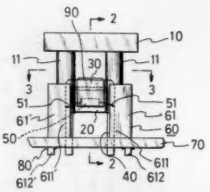
tion of the device. The device has a first member which is fabricated from a material which undergoes a relatively large change in strength over the operating temperature range of the device. This first member may be operably connected to a second spring member so that movement of the second spring member causes movement of the first member. The second spring member preferably has a different strength-temperature characteristic so that the device will attempt to assume a first stable configuration at a first temperature and a different stable configuration at a second temperature.

3,783,430

CONTACTLESS SWITCHING APPARATUS

Seishiro Nishiba; Masasi Kuroyanagi, both of Tokyo, and Koichi Ogawa, Yokohama, all of Japan, assignors to Denki Onkyo Co., Ltd., Tokyo, Japan

Filed May 23, 1972, Ser. No. 256,153
Claims priority, application Japan, May 24, 1971, 46/42300
Int. Cl. H01c *7/16*
U.S. Cl. 338—32 H **17 Claims**



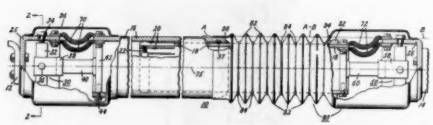
A contactless switching apparatus comprised of a magnetic strip both ends of which are bent to form opposed terminal portions, a magnetic piece which is fitted in said strip and is attracted at its both ends by said bent terminal portions, a supporting member which fixes either the strip or the magnetic piece to a base and hold it at a position a certain distance away from the base, an actuating means which actuates the rest, which is not fixed at the base, of the strip and magnetic piece and galvano-magneto effect devices which are provided at the ends of the fixed magnetic member, wherein the magnetic field intensity applied to the device is varied with movement of the movable magnetic member actuated by said actuating means.

3,783,431

ELECTRIC CONNECTOR WITH RELATIVELY-MOVABLE TERMINALS FOR OUTDOOR, ICING ENVIRONMENT

Paul E. Badey, Media, and John A. Oppel, Aldan, both of Pa., assignors to General Electric Company, Philadelphia, Pa.

Filed Apr. 3, 1972, Ser. No. 240,493
Int. Cl. H01r *39/64*
U.S. Cl. 339—2 R **10 Claims**



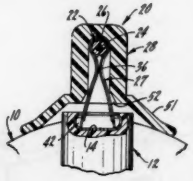
An electric connector usable in an outdoor, icing environment for conducting current between spaced-apart, relatively movable parts. The connector comprises a tubular contact member, a rod contact member telescopically slidable therein, and two universal joints respectively mounting said contact members on said movable parts to permit angular movement of the contact members relative to said parts. A tubular sheath of flexible material encircles the portion of the rod contact member located outside said tubular contact member and has an external shape containing protuberances adapted to notch, and thereby weaken, any ice forming thereabout.

3,783,432

CONNECTOR

Edward A. Biba, Westchester, and Leonard A. Sowinski, Chicago, both of Ill., assignors to Mandex Manufacturing Company, Inc., Chicago, Ill.

Filed Dec. 22, 1971, Ser. No. 210,939
Int. Cl. H01r *11/30*
U.S. Cl. 339—12 V **3 Claims**



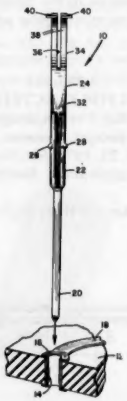
A connector for connecting a lead wire to a terminal socket, such as an anode socket. The connector includes a clip formed of spring sheet metal and comprising legs which bow inwardly and then outwardly to flanged ends. Compression of the legs causes the bowed segments to engage and increase spring retention force of the clip. A crimp barrel fastens the clip to the conductor wire, and a bead around a portion of the crimp barrel and along the length of the legs provides an excellent electrical and mechanical connection between the lead wire and the connector clip, as well as flexural strength to the legs. The clip is seated in a flexible, insulating cup which controls the flexure of the legs.

3,783,433

SOLDERLESS ELECTRICAL CONNECTION SYSTEM

Harvey N. Kurtz, Huntington, and Charles A. Gourley, Bethel, both of Conn., assignors to Litton Systems, Inc., Oakville, Conn.

Filed Jan. 18, 1971, Ser. No. 107,240
Int. Cl. H05k *1/02*
U.S. Cl. 339—17 C **6 Claims**



A solderless electrical connection system is shown having a main mounting board with a plurality of plated-through holes

therein. A conductive electrical contact including a central section is pressed into the plated-through holes with the central section thereof flexing as it is urged into the hole and yielding to generate retention forces therein without destroying the hole. The flexing central section of the contact provides a gas seal between the plated-through hole and the contact for preventing deterioration of electrical continuity therebetween. Each end of the conductive contact may be provided with a configuration which allows electrical components to be mounted thereby or attached thereto.

3,783,434

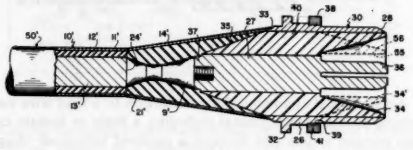
SHIELDED CABLE COUPLER

Herbert E. Ransford, III, Pittsburgh, Pa., assignor to Mark III, Inc., Pittsburgh, Pa.

Filed Aug. 10, 1972, Ser. No. 279,456

Int. Cl. H01r *17/04*

U.S. Cl. 339—60 C **7 Claims**



A cable coupler device, of the type used in mining applications, suitable for interconnecting portions of shielded, three phase electrical cable which greatly reduces the hazard of phase-to-phase faults. The coupler device includes electrically shielded male and female coupling members which are adapted to be connected with the shielded portions and conductor portions of the phase conductors such that a continuous shield at ground potential is maintained around each phase conductor as it passes through the coupler device. The coupler device also includes annular insulators positioned between the electrical contacts and the shielded coupling members.

3,783,435

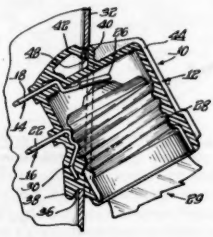
LIGHT SOCKET DEVICE

Julian V. Fisher, Carpentersville, Ill., assignor to Illinois Tool Works Inc., Chicago, Ill.

Filed Dec. 23, 1971, Ser. No. 211,355

Int. Cl. H01r *13/54*

U.S. Cl. 339—92 M **9 Claims**



The present invention relates generally to improvements in light sockets of the type adapted for accommodating the metallic threaded base of a conventional electric light bulb and more particularly to a novel molded plastic light socket device adapted for use in refrigerator interiors. The embodiment of the invention disclosed herein comprises a molded plastic light bulb accommodating housing formed of two symmetrical abutting half sections having electrical terminal members projecting therethrough, one for contacting the entering end of a light bulb base and the other for contacting the base periperhy. A section of the housing is adapted to interlock with the margin of the supporting panel and an oppositely disposed section is provided with flexible prong means for yieldably engaging said panel.

3,783,436

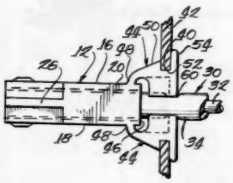
ELECTRICAL CONNECTOR HOUSING WITH BUILT-IN STRAIN RELIEF

Allen J. Bury, Prospect Heights, Ill., assignor to Molex, Incorporated, Dowers Grove, Ill.

Filed July 17, 1972, Ser. No. 272,435

Int. Cl. H01r *13/58*

U.S. Cl. 339—107 **9 Claims**



A plastic electrical housing for mounting a plurality of terminals is provided with mounting ears that extend out from the body substantially at right angles, and are folded over into parallelism with the body for receipt in an aperture in a panel to mount the housing therein. When folded over, the ears extend to the rear of the housing or body and are provided with confronting sections for gripping against lead wires in a strain relief arrangement.

3,783,437

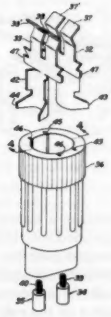
LAMP AND SOCKET FOR DECORATIVE STRING SET

James C. Graff, and Robert M. Rhoades, both of Cleveland Heights, Ohio, assignors to General Electric Company, Schenectady, N.Y.

Filed Oct. 7, 1971, Ser. No. 187,348

Int. Cl. H01r *13/26*

U.S. Cl. 339—144 R **4 Claims**



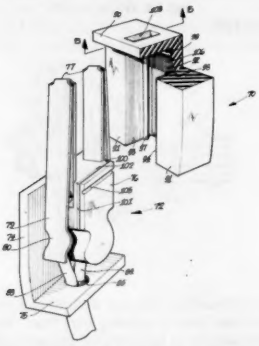
An electric lamp having a stem press with opposite parallel faces, each face having a groove terminating in an end wall followed by an indentation, lead wires bent around the stem press's outer edge are guided by the respective grooves so as

to be positioned over the indentations. A socket with two contacts adapted to engage the stem press of a lamp, each contact having two fingers one of which makes electrical contact with the lamp's bent around lead wires while the other finger contacts the glass portion of the stem press.

3,783,438
ELECTRIC WALL PLUG

Philippe G. Grant, P.O. Box 1076, Station B, Ottawa, Ontario, Canada

Filed May 26, 1972, Ser. No. 257,115
Int. Cl. H01r *33/06*
U.S. Cl. 339—196 R **2 Claims**

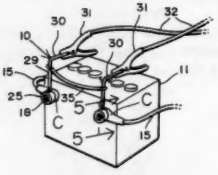


An electric wall plug having a sleeve or insert member maintaining the contact ends of the flexible prongs in secure engagement with the ends of the connector wires without any need for wrapping the wires around the contact ends. This permits rapid assembly and disassembly of the plug.

3,783,439
BATTERY CHARGER ADAPTER

Paul Valentino, 790 N.E. 119th St., Biscayne Park, Miami, Fla.

Filed Feb. 14, 1973, Ser. No. 332,320
Int. Cl. H01r *11/26*
U.S. Cl. 339—234 **3 Claims**

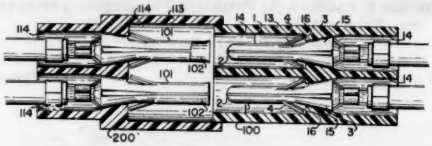


An adapter for connecting a battery to a battery charger wherein the battery is provided with terminals extending along its side wall with a threaded bore for receiving a connector post. The adapter is provided with a pair of metallic rings each of which fits over the post and is tightened thereon by an elongated metallic rod threaded on the ring and engaging the post. The end of each of the rods is bent to form a handle for tightening and loosening the rods against the posts. The rods are prevented from being separated by an elongated pliable member that consists of non-conducting material. The handles are each connected by conductors that extend to the battery charger.

3,783,440
ELECTRICAL CONNECTOR

Soichi Karube, Tokyo; Yoshio Hamada, Hitachi, and Yoshiyasu Suganuma, Hiratsuka, all of Japan, assignors to Kanto Seiki Co., Ltd., Saitama-ken; Hitachi Cable Ltd., Tokyo and Nippon Tanshi, Ltd., Kanagawa-ken, Japan

Filed May 30, 1972, Ser. No. 257,553
Claims priority, application Japan, June 2, 1971, 46/38751; June 2, 1971, 46/38752
Int. Cl. H01r *9/08*
U.S. Cl. 339—217 S **5 Claims**

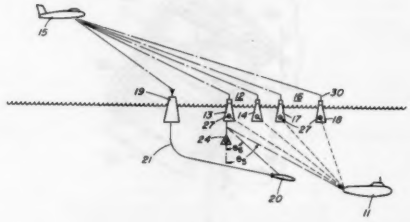


An electrical connector for connection to a lead wire comprising at least one terminal including a male or female contact portion at one end thereof, a resilient bellmouth-shaped portion interposed between the contact portion and the end of the terminal adapted for connection to the lead wire, and an engaging portion; and a connector body including a terminal-receiving aperture with its internal surface partly or wholly tapered and a portion for holding the terminal by engagement with the engaging portion of the terminal; the engaging portion of the terminal being inserted into the terminal-receiving aperture to such an extent as to engage with the holding portion, the bellmouth-shaped portion of the terminal being resiliently pressed against the internal surface of the tapered portion thereby to support the electrical connector.

3,783,441
AIR LAUNCHED, WIRE GUIDED TORPEDO

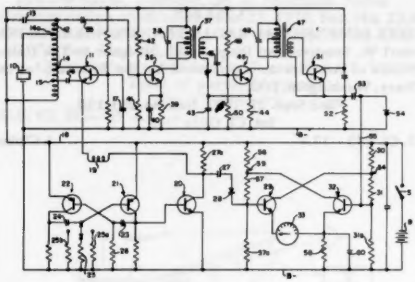
Zaka I. Slawsky, Bethesda, Md., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed June 30, 1965, Ser. No. 469,060
Int. Cl. G01s *9/68*
U.S. Cl. 340—2 **13 Claims**



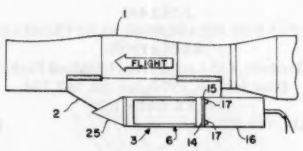
A submarine detecting and tracking system which utilizes sonouoys to track both a target submarine and a guided torpedo. The sonobuoy signals are received and processed on a surface vessel or aircraft and the torpedo is guided by remote control to intercept the target submarine.

3,783,442
DEPTH SOUNDER
George Feinman, Whitestone, N.Y., and Richard Haven, Long Branch, N.J., assignors to Andrea Radio Corporation, Long Island City, N.Y.
Filed Apr. 10, 1972, Ser. No. 242,421
Int. Cl. G01s 9/68
U.S. Cl. 340—3 R 13 Claims



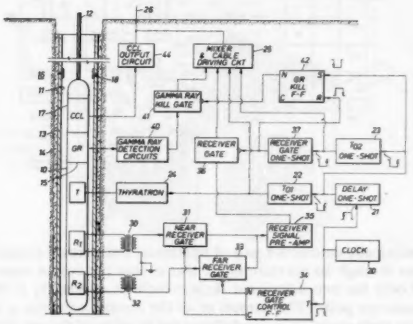
A depth sounding instrument including an oscillator for supplying AC energy to a transducer. The oscillator is keyed on by a multivibrator which produces clock pulses. Each clock pulses switches the state of a flip flop and starts a time measuring interval each time a clock pulse is supplied to the oscillator. A receiver receives the reflected sonic energy and terminates the time measuring interval of the flip-flop. A meter responds to the measured time interval to provide a visual indication of the depth from which energy was reflected.

3,783,443
EJECTABLE UNDERWATER SOUND SOURCE RECOVERY ASSEMBLY
Stephen C. Irick, Hampton, Va., assignor to The United States of America as represented by the Administrator of the National Aeronautics and Space Administration, Washington, D.C.
Filed July 19, 1972, Ser. No. 273,240
Int. Cl. H04b 11/00
U.S. Cl. 340—5 R 11 Claims



For ejectable mounting on a mobile device (e.g., a rocket) intended to travel over water to facilitate location and recovery of the device when submerged, an underwater sound source is mounted in a mounting bracket which is attachable to the device so as to detach or eject upon impact, destruction, or automatically at a prescribed time or under prescribed conditions. Preferred attachment means for some uses comprise bolts which are adapted to fracture upon impact with the water. A length of flexible line is coiled within a line housing coupled to the mounting bracket such that the line will freely feed out from the housing when pulled by one free end thereof, which free end is adapted for coupling with the device, the other end being coupled with the sound source and its bracket. This allows ejection of the bracket with the sound source, while maintaining a flexible connection between the mobile device and the sound source. An aerodynamic fairing which provides a clean aerodynamic surface during flight is adapted to separate from the bracket upon ejection from the mobile device. During recovery, the sound source is located by a diver, and the line leads to the device, which may be a rocket buried in mud on the ocean floor.

3,783,444
METHOD AND APPARATUS FOR USE IN INVESTIGATING EARTH FORMATIONS
Geary L. Leger, Yucaipa, Calif., assignor to Schlumberger Technology Corporation, New York, N.Y.
Filed Aug. 1, 1969, Ser. No. 846,907
Int. Cl. G01v 1/40
U.S. Cl. 340—18 CM 20 Claims

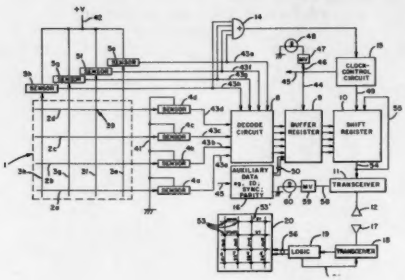


In accordance with an illustrative embodiment of the present invention, a well tool having first and second exploring means is moved through a borehole for investigating the media surrounding the well tool. The first exploring device produces pulses whose rate is representative of a formation parameter. The second exploring means, on the other hand, includes an energy emitting transmitter and two nearby energy receiving receivers. This transmitter is periodically energized to emit energy into the surrounding media and a sync pulse representative of the time of such energy emission is produced for transmission to the surface of the earth. The signals produced by each receiver are transmitted to the surface of the earth on alternate emissions of energy. All of these above-mentioned signals from both exploring means are transmitted on a common transmission channel. The pulses from the first exploring means are inhibited from transmission for a predetermined time interval prior to the transmission of each sync pulse until after a receiver signal has been transmitted. Thus, a transmission dead period results during this predetermined time interval prior to the sync pulse transmission. At the surface of the earth, a detector circuit is repsonsive to the periodic nature of the sync pulses plus the transmission dead period for detecting each sync pulse. To identify which receiver produced each receiver signal, the time interval between the sync pulses and their corresponding receiver signals are measured and compared.

3,783,445
VEHICLE LOCATOR SYSTEM
Kent A. Penwarden, Los Altos, Calif., assignor to E-Systems Incorporated, Dallas, Tex.
Continuation of Ser. No. 44,219, June 8, 1970, abandoned.
This application Sept. 11, 1972, Ser. No. 287,631
Int. Cl. G08g 1/12
U.S. Cl. 340—24 4 Claims

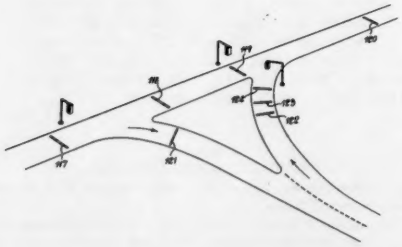
A compression type matrix switch comprising rows of parallel horizontal conductors in one plane and columns of parallel

vertical conductors in a second plane parallel to the first plane and spaced therefrom by a resilient mat having apertures therethrough at the crossover points of the horizontal and vertical conductors is located behind a beat map overlay in a police patrol car. One end of each conductor is connected to a different sensor that monitors the electrical continuity between conductors at associated horizontal and vertical crossover points. The location of the car is selected for transmission to a monitor facility by firmly pressing the map at the crossover point nearest the actual location of the car. This



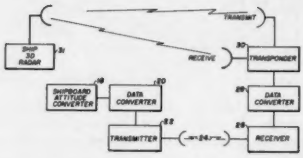
electrically connects a pair of horizontal and vertical conductors through an aperture in the mat so that the output signals of only the two associated sensors indicate continuity at the crossover point. The outputs of all the sensors comprise a binary code signal uniquely defining the location of the car. This code signal is coupled, together with a binary code signal identifying the car, through a shift register to a transceiver for transmission to the monitor facility. Binary signals received at the monitor facility are processed in a logic circuitry for presenting on a map a visual indication of the location of the patrol car.

3,783,446
TRAFFIC CONTROL SYSTEM
John W. McGimpsey, 83 Oakdene Ave., Teaneck, N.J.
Filed Dec. 9, 1971, Ser. No. 206,274
Int. Cl. G08g 1/02
U.S. Cl. 340—31 R **4 Claims**



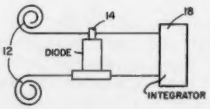
A traffic control and warning system for the control of traffic characterized by a series of traffic lights selectively operated through relays which are operated by switches located in the roadway and which switches are tripped by the wheels of a vehicle. Provision is made for warning drivers when a vehicle stalls in the roadway.

3,783,447
THREE DIMENSIONAL RADAR TRANSPONDER SYSTEM
Robert W. Snaders, San Diego, Calif., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.
Filed Sept. 21, 1972, Ser. No. 291,120
Int. Cl. G01s 7/40
U.S. Cl. 343—17.7 **6 Claims**



An independent system to evaluate three dimensional radars which derive their height information from slant range and beam elevation. This transponder system consists of two major units, one of which senses the ship attitude and transmits this information to the control station. The second major unit on shore receives this information and uses it to update and pre-set conditions of the transponder, in accordance with the ship attitude, to synthesize a target at a given range, elevation and azimuth when the radar uses a specific beam to determine the angle of elevation of the target above the horizon.

3,783,448
APPARATUS FOR MEASURING ELECTROMAGNETIC RADIATION
Morris E. Brodwin, 145 Laurel Ave., Highland Park, Ill.
Filed July 30, 1971, Ser. No. 167,734
Int. Cl. G01w 1/00
U.S. Cl. 343—100 ME **12 Claims**

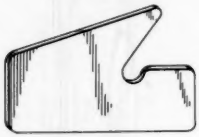


This invention relates to a new apparatus for measuring total electromagnetic radiation or exposure to non-ionizing electromagnetic radiation. The apparatus comprises, in combination, an equiangular spiral antenna, a crystal diode detector, a processor and an integrator. The apparatus, by means of the integrator totals the amount of electromagnetic radiation which it is exposed to.

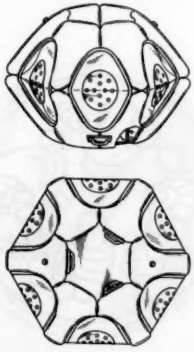
DESIGNS

JANUARY 1, 1974

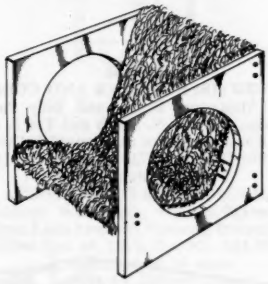
229,729
TAB FOR HOLDING THREAD ON A BOBBIN
Haruo Ueda, 36 Sakurazono-machi; Masano Sugi, 607–4 Midorigaoka-cho; and Hiroshi Chayamichi, 3–1 Nakagawara-machi, 2-chome, all of Nobeoka, Japan
Original design application June 23, 1970, Ser. No. 23,636, now abandoned. Divided and this application Oct. 12, 1971, Ser. No. 188,647
Claims priority, application Japan Dec. 23, 1969
Term of patent 14 years
Int. Cl. D5—*99*
U.S. Cl. D3—19 A



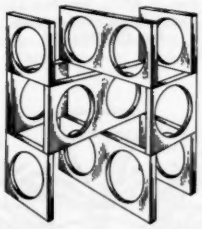
229,730
PNEUMATIC PLAY PEN
Shoji Suzuki, 6–11, 3-chome, Higashi-Mukojima, Sumida-ku, Tokyo, Japan
Filed Apr. 6, 1972, Ser. No. 241,866
Claims priority, application Japan Oct. 20, 1971
Term of patent 14 years
Int. Cl. D6—*06*
U.S. Cl. D6—13



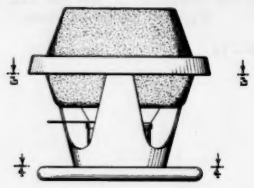
229,731
CHAIR
Francis B. Walsh, 1865 Charmelton St., Eugene, Oreg. 97401
Filed Mar. 6, 1972, Ser. No. 232,357
Term of patent 14 years
Int. Cl. D6—*01*
U.S. Cl. D6—70



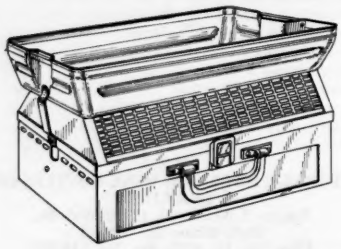
229,732
STORAGE RACK FOR WINE BOTTLES OR THE LIKE
Eugene J. Majewski, 121 Elmore St., Park Ridge, Ill. 60068
Filed Jan. 18, 1972, Ser. No. 218,853
Term of patent 14 years
Int. Cl. D6—*04*
U.S. Cl. D7—71



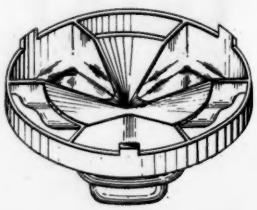
229,733
CHAFING DISH FOR FONDUE OR THE LIKE
Fred Press, White Plains, N.Y., assignor to House Mates Inc., Hartsdale, N.Y.
Filed June 23, 1971, Ser. No. 156,166
Term of patent 14 years
Int. Cl. D7—*02*
U.S. Cl. D7—90



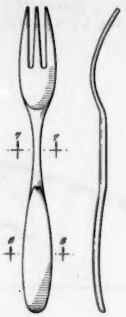
229,734
CONVERTIBLE HEATER AND COOKER
Manley R. MaKenny, Beggs, and Billy Joe Duncan, Tulsa, Okla., and Jay N. Smith and Ted J. McDonald, Wichita, Kans., assignors to Brunswick Corporation
Filed Dec. 14, 1972, Ser. No. 315,111
Term of patent 14 years
Int. Cl. D7—*02*
U.S. Cl. D7—110



229,735
REMOVABLE COMPARTMENTED CUP FOR A DISPENSING CONTAINER
Jack V. Croyle, Woonsocket, and James B. Sweet, Barrington, R.I., assignors to Dart Industries, Inc., Los Angeles, Calif.
Filed Jan. 3, 1972, Ser. No. 215,244
Term of patent 14 years
Int. Cl. D7—*06*
U.S. Cl. D7—129

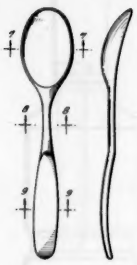


229,736
FORK
Donald Wallace, Croton-on-Hudson, N.Y., assignor to H. E. Lauffer Co., Inc., Somerset, N.J.
Filed July 25, 1972, Ser. No. 274,879
Term of patent 14 years
Int. Cl. D7—*03*
U.S. Cl. D7—137

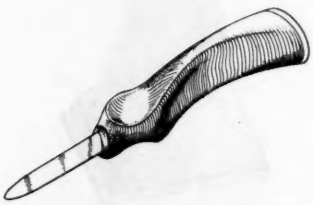


229,737
FOOD CONTAINER LID
William D. Taylor, Wooster, Ohio, assignor to Rubbermaid Incorporated
Filed Sept. 27, 1972, Ser. No. 294,263
Term of patent 7 years
Int. Cl. D7—*02*
U.S. Cl. D7—131

229,738
SPOON
Donald Wallance, Croton-on-Hudson, N.Y., assignor to H. E. Lauffer Co., Inc., Somerset, N.J.
Filed July 25, 1972, Ser. No. 274,919
Term of patent 14 years
The portion of the term of the patent subsequent to Jan. 1, 1988, has been disclaimed
Int. Cl. D7—*03*
U.S. Cl. D7—137

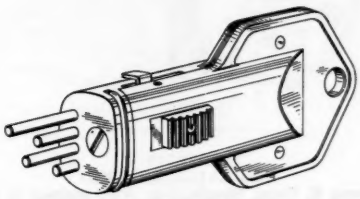


229,739
OYSTER SHUCKING KNIFE
Charles D. Briddell, 335 Hill-N-Dale Drive, York, Pa. 17403
Filed July 5, 1972, Ser. No. 269,070
Term of patent 7 years
Int. Cl. D7—*03*
U.S. Cl. D7—150

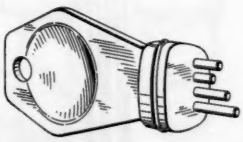


229,740
LITTER BIN OR SIMILAR ARTICLE
Harry Zelenko, 240 E. 61st St., New York, N.Y. 10021
Continuation-in-part of design application Ser. No. 141,096, May 6, 1971. This application Jan. 9, 1973, Ser. No. 322,161
Term of patent 14 years
Int. Cl. D20—*99*
U.S. Cl. D7—194

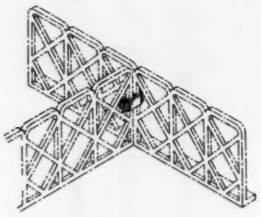
229,741
ADJUSTABLE KEY FOR LOCKS
Kalju Helenurm, Willowdale, Ontario, Canada, assignor to Jonathan Lock Limited, Toronto, Ontario, Canada
Filed Jan. 15, 1973, Ser. No. 323,797
Term of patent 14 years
Int. Cl. D8—*07*
U.S. Cl. D8—136



229,742
KEY FOR LOCKS
Kalju Helenurm, Willowdale, Ontario, Canada, assignor to Jonathan Lock Limited, Toronto, Ontario, Canada
Filed Jan. 25, 1973, Ser. No. 323,798
Term of patent 14 years
Int. Cl. D8—*07*
U.S. Cl. D8—136



229,743
RESILIENT CONNECTOR FOR DISPLAY PARTITIONS OR THE LIKE
David M. Moore, Pittsburgh, Pa., assignor to Armstrong Store Fixture Corporation, Pittsburgh, Pa.
Filed Sept. 1, 1972, Ser. No. 285,827
Term of patent 14 years
Int. Cl. D8—*08*
U.S. Cl. D8—259

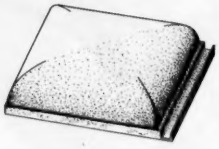


229,744
RANGE GRATE HOLD DOWN CLIP
Joseph J. Oletti, South Bend, Ind., assignor to D & G Associates, Inc., Elkhart, Ind.
Filed Mar. 24, 1972, Ser. No. 237,999
Term of patent 3½ years
Int. Cl. D8—*07*
U.S. Cl. D8—259

229,745
INSULATOR BRACKET
Clarence E. Dean, Birmingham, Ala., assignor to Dixie Electrical Manufacturing Company
Filed Aug. 30, 1972, Ser. No. 285,011
Term of patent 14 years
Int. Cl. D13—*03*
U.S. Cl. D8—230

229,746
BOTTLE
Charles J. McPhee, Sylmar, Calif., assignor to American Hospital Supply Corporation, Evanston, Ill.
Filed June 19, 1972, Ser. No. 264,353
Term of patent 14 years
Int. Cl. D9—*01*
U.S. Cl. D9—159

229,747
ROOF ELEMENT
Willard J. Schroll, Jessup, Md., assignor to Better Marketing Industries, Inc., Jessup, Md.
Filed Nov. 24, 1971, Ser. No. 202,067
Term of patent 14 years
Int. Cl. D25—*02*
U.S. Cl. D13—1 H

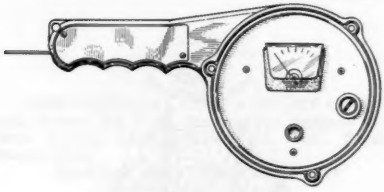


229,748
LIQUID SPECIMEN TUBE
Fred K. White, Glen Ellyn, Ill., assignor to Miles Laboratories, Inc., Elkhart, Ind.
Filed Sept. 30, 1971, Ser. No. 185,474
Term of patent 14 years
Int. Cl. D24—*99*
U.S. Cl. D16—1 R

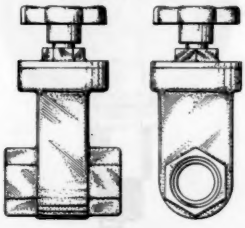
229,749
VITAMIN TABLET OR SIMILAR ARTICLE
Ian C. Modelevsky, Pleasantville, Benjamin S. De Young, Sands Point, and Donald Nevins, East Elmhurst, N.Y., and Morley A. Stern, Mexico City, Mexico, assignors to Bristol-Myers Company, New York, N.Y.
Filed June 27, 1972, Ser. No. 266,821
Term of patent 14 years
Int. Cl. D1—*01*; D28—*01*
U.S. Cl. D16—3

229,750
FLY
Jim A. Teeny, 915 NE. 108th, Portland, Oreg. 97220
Filed June 20, 1972, Ser. No. 264,623
Term of patent 14 years
Int. Cl. D22—*05*
U.S. Cl. D22—27

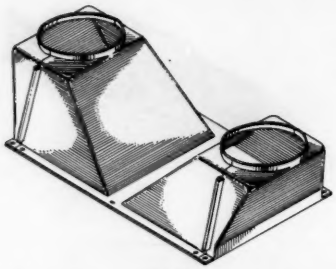
229,751
FISHING THERMOMETER INSTRUMENT
Horst M. Krenz, St. Joseph, Mich., assignor to Heath Company, Benton Harbor, Mich.
Filed Oct. 8, 1971, Ser. No. 187,707
Term of patent 14 years
Int. Cl. D22—*05*
U.S. Cl. D22—99



229,752
VALVE
Eddy K. Dayne, Glendora, and Wilbur G. Land, Anaheim, Calif., assignors to Bagdad Plastics Company, Phoenix, Ariz.
Filed Sept. 20, 1971, Ser. No. 182,307
Term of patent 14 years
Int. Cl. D23—*01*
U.S. Cl. D23—19

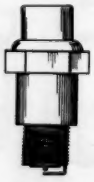


229,753
COMBINED AIR SCOOP AND DUCT COUPLING COLLAR ASSEMBLY FOR A HUMIDIFIER UNIT
William B. Morrow, Winston-Salem, N.C., assignor to Aqua-Mist Incorporated, Winston-Salem, N.C.
Filed May 1, 1972, Ser. No. 249,488
Term of patent 14 years
Int. Cl. D23—*146*
U.S. Cl. D23—146

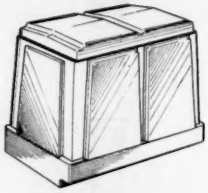


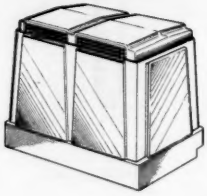
229,754
AIR FRESHENER
James V. Ali, 2646 Richmar Drive, Xenia, Ohio 45385
Filed Dec. 4, 1972, Ser. No. 311,862
Term of patent 14 years
Int. Cl. D23—*04;* D11—*04*
U.S. Cl. D23—150

229,755
SPARK PLUG
Lester B. Moss, 5619 Sapphire Ave., Jennings, Mo. 63136
Filed Mar. 28, 1972, Ser. No. 238,996
Term of patent 14 years
Int. Cl. D15—*01*
U.S. Cl. D26—1.5



229,756
PCM SUBSCRIBER CARRIER SYSTEM REMOTE TERMINAL WEATHERPROOF HOUSING OR SIMILAR ARTICLE
James R. Stewart, San Jose, and Donald G. Tweed, Mountain View, Calif., assignors to GTE Automatic Electric Laboratories Incorporated, Northlake, Ill.
Filed Nov. 1, 1972, Ser. No. 302,974
Term of patent 14 years
Int. Cl. D14—*03*
U.S. Cl. D26—14 A





229,757
TELEPHONE MESSAGE HOLDER
Robert S. Hansen, 151 Glenwood Court, Santa Rosa, Calif. 95404
Filed Feb. 5, 1973, Ser. No. 329,630
Term of patent 14 years
Int. Cl. D14—*03*
U.S. Cl. D26—14 A

229,758
CHRISTMAS TREE BLANKET
Mary F. Bartel, 45 N. Hamilton St., Poughkeepsie, N.Y. 12601
Filed Feb. 14, 1972, Ser. No. 226,363
Term of patent 7 years
Int. Cl. D11—*05*
U.S. Cl. D29—1 B

229,759
NONMONETARY COIN AND THE LIKE
Tomás Batista, San Juan, Puerto Rico, assignor to Del-Bros Jewelry Manufacturing Co., Inc., Bayamon, Puerto Rico
Filed June 16, 1971, Ser. No. 153,912
Term of patent 14 years
Int. Cl. D11—*03*
U.S. Cl. D29—19 R

229,760
NONMONETARY COIN AND THE LIKE
Tomás Batista, San Juan, Puerto Rico, assignor to Del-Bros Jewelry Manufacturing Co., Inc., Bayamon, Puerto Rico
Filed June 16, 1971, Ser. No. 153,913
Term of patent 14 years
Int. Cl. D11—*03*
U.S. Cl. D29—19 R

229,761
NONMONETARY COIN AND THE LIKE
Tomás Batista, San Juan, Puerto Rico, assignor to Del-Bros Jewelry Manufacturing Co., Inc., Bayamon, Puerto Rico
Filed June 16, 1971, Ser. No. 153,914
Term of patent 14 years
Int. Cl. D11—*03*
U.S. Cl. D29—19 R

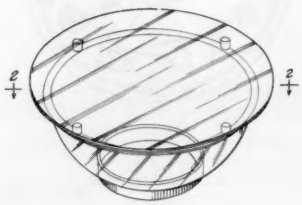
229,762
NONMONETARY COIN AND THE LIKE
Tomás Batista, San Juan, Puerto Rico, assignor to Del-Bros Jewelry Manufacturing Co., Inc., Bayamon, Puerto Rico
Filed June 16, 1971, Ser. No. 153,915
Term of patent 14 years
Int. Cl. D11—*03*
U.S. Cl. D29—19 R

229,763
NONMONETARY COIN AND THE LIKE
Tomás Batista, San Juan, Puerto Rico, assignor to Del-Bros Jewelry Manufacturing Co., Inc., Bayamon, Puerto Rico
Filed July 13, 1971, Ser. No. 162,332
Term of patent 14 years
Int. Cl. D11—*03*
U.S. Cl. D29—19 R

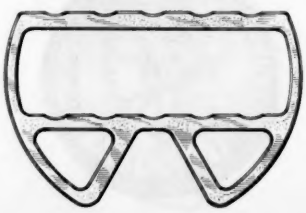
229,764
NONMONETARY COIN AND THE LIKE
Tomás Batista, San Juan, Puerto Rico, assignor to Del-Bros Jewelry Manufacturing Co., Inc., Bayamon, Puerto Rico
Filed July 13, 1971, Ser. No. 162,333
Term of patent 14 years
Int. Cl. D11—*03*
U.S. Cl. D29—19 R

229,765
NONMONETARY COIN AND THE LIKE
Tomás Batista, San Juan, Puerto Rico, assignor to Del-Bros Jewelry Manufacturing Co., Inc., Bayamon, Puerto Rico
Filed July 13, 1971, Ser. No. 162,334
Term of patent 14 years
Int. Cl. D11—*03*
U.S. Cl. D29—19 R

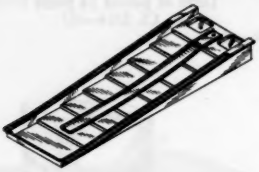
229,766
COMBINED TABLE AND AQUARIUM OR SIMILAR ARTICLE
Lynn H. Kephart, 2109 Skylark St., Arlington, Tex. 76010
Filed Feb. 22, 1972, Ser. No. 228,461
Term of patent 14 years
Int. Cl. D30—*02*
U.S. Cl. D30—11



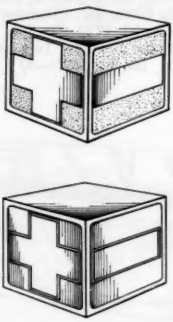
229,767
GOLF BAG DIVIDER
Thomas Kelly Ferguson, Eminence, Ky., assignor to The Brunswick Corporation
Filed Jan. 24, 1972, Ser. No. 220,540
Term of patent 14 years
Int. Cl. D21—*02*
U.S. Cl. D34—5 GB



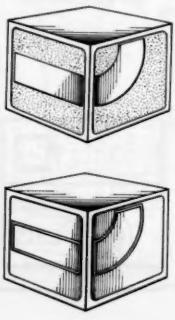
229,768
SHUFFLEBOARD GAME DEVICE
Raymond J. Lohr and Laurie May Campbell, Erie, Pa., assignors to Louis Marx & Co., Inc., New York, N.Y.
Filed May 12, 1972, Ser. No. 252,963
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D34—5 BB



229,769
TOY BUILDING BLOCK
Robert Daenen, Erembodegem, Belgium, assignor to Dart Industries Inc., Los Angeles, Calif.
Filed June 5, 1972, Ser. No. 260,031
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D34—15 FF



229,770
TOY BUILDING BLOCK
Robert Daenen, Erembodegem, Belgium, assignor to Dart Industries Inc., Los Angeles, Calif.
Filed June 5, 1972, Ser. No. 260,058
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D34—15 FF



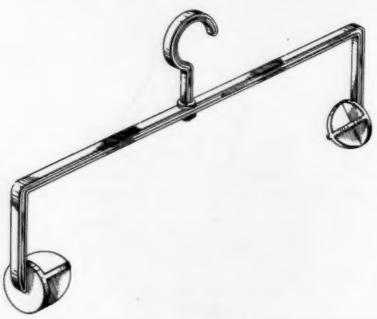
229,771
WATCHCASE
Laurie Jay Campbell, Erie, Pa., assignor to Louis Marx & Co., Inc., New York, N.Y.
Filed Jan. 3, 1972, Ser. No. 215,238
Term of patent 14 years
Int. Cl. D10—*02*
U.S. Cl. D42—8 R

229,772
TABLE LAMP
Stephen W. Morris, 1354 Eastshore Drive, Alameda, Calif. 94501
Filed May 24, 1972, Ser. No. 256,628
Term of patent 14 years
Int. Cl. D26—*05*
U.S. Cl. D48—20 F

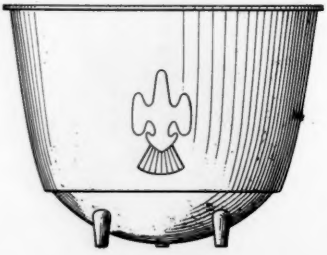
229,773
COMBINED VEHICLE SAFETY LIGHTS ENSEMBLE AND MOUNTING BRACKET THEREFOR
Ladell P. Olson and Frank P. Cooley, Eagle Grove, Iowa, assignors to Rycol Corporation, Eagle Grove, Iowa
Filed May 26, 1972, Ser. No. 257,485
Term of patent 14 years
Int. Cl. D26—*06*
U.S. Cl. D48—32 R

229,774
AUXILIARY LIGHT FOR AUTOMOBILES
Pierre Cibie, 150 Avenue de Wagram 75017, Paris, France
Filed Nov. 6, 1972, Ser. No. 304,155
Claims priority, application France July 18, 1972
Term of patent 14 years
Int. Cl. D26—*06, 03*
U.S. Cl. D48—32 R

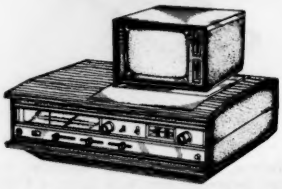
229,775
PAPER TOWEL HOLDER
Clifford F. Carroll, Box 76, Cave Creek, Ariz. 85331
Filed June 6, 1972, Ser. No. 260,348
Term of patent 14 years
Int. Cl. D6—*99*
U.S. Cl. D52—2 C



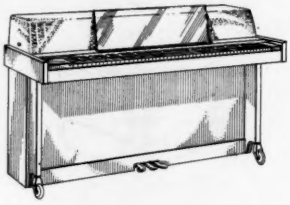
229,776
BASE KETTLE FOR A MUSICAL DRUM
Robert L. Leighton, Box 22, Cortez, Colo. 81321
Filed Mar. 5, 1971, Ser. No. 121,613
Term of patent 14 years
Int. Cl. D17—*04*
U.S. Cl. D56—1 E



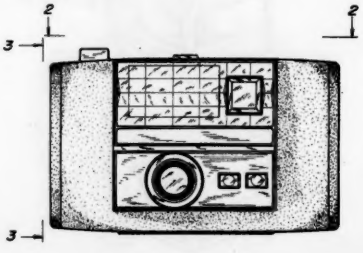
229,777
COMBINED RADIO AND RETRACTABLE TELEVISION RECEIVER
Makoto Terauchi, Yasunobu Nakamura, Osamu Sugihara, Tadashi Sumino, Kazuhiro Ueda, and Kiyoshi Suzuki, Osaka, Japan, assignors to Matsushita Electric Industrial Co., Ltd., Kadoma, Japan
Filed Dec. 17, 1971, Ser. No. 209,496
Claims priority, application Japan June 18, 1971
Term of patent 14 years
Int. Cl. D14—*03*
U.S. Cl. D56—4 D



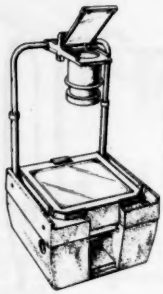
229,778
PIANO
Thomas E. Kimble, Covington, Ky., assignor to D. H. Baldwin Company, Cincinnati, Ohio
Filed June 12, 1972, Ser. No. 262,140
Term of patent 14 years
Int. Cl. D17—*01*
U.S. Cl. D56—9



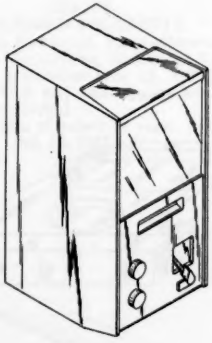
229,779
CAMERA
Ronald A. Emmerling, New City, N.Y., assignor to Keystone Division of Berkey Photo, Paramus, N.J.
Filed Nov. 19, 1971, Ser. No. 200,663
Term of patent 14 years
Int. Cl. D16—*01*
U.S. Cl. D61—1 B



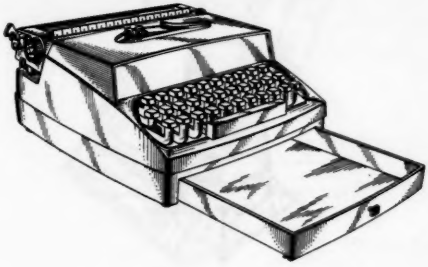
229,780
OVER-HEAD PROJECTOR OR SIMILAR ARTICLE
Tooru Ishida, Yamato-machi, Japan, assignor to Kabushiki Kaisha Koparu, Tokyo-to, Japan
Filed Sept. 24, 1971, Ser. No. 183,724
Claims priority, application Japan Apr. 7, 1971
Term of patent 14 years
Int. Cl. D16—*01*
U.S. Cl. D61—1 L



229,781
APERTURE CARD VIEWER
Thomas C. Laughon, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.
Filed Sept. 11, 1972, Ser. No. 287,958
Term of patent 14 years
Int. Cl. D16—*03*
U.S. Cl. D61—1 N

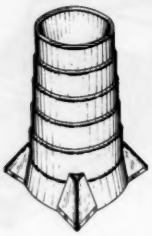


229,782
TYPEWRITER
Frank C. Fusco, Monroe, and Bill Gold, Great Neck, N.Y., assignors to Louis Marx & Co., Inc., New York, N.Y.
Filed Aug. 10, 1971, Ser. No. 170,679
Term of patent 14 years
Int. Cl. D18—*01*
U.S. Cl. D64—11 A



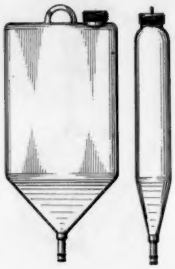
229,783
PUMP
Jerry L. Campbell and Farral D. Gay, Jr., Salt Lake City, Utah, assignors to Toran Corporation, Salt Lake City, Utah
Filed Nov. 26, 1971, Ser. No. 202,731
Term of patent 14 years
Int. Cl. D15—*02*
U.S. Cl. D65—1 R

229,784
TRAFFIC MARKER
Howard Bryan Carter, Scarborough, Ontario, Canada, assignor to Rosedale Plastics (Containers) Limited, Toronto, Ontario, Canada
Filed Apr. 9, 1973, Ser. No. 348,973
Term of patent 14 years
Int. Cl. D29—*02*
U.S. Cl. D72—1 J

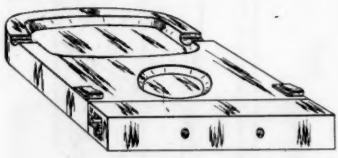


229,785
WRITING INSTRUMENT
Raymond A. Lanoie, East Greenwich, R.I., assignor to Garland Industries, Inc.
Filed Apr. 17, 1972, Ser. No. 245,005
Term of patent 14 years
Int. Cl. D19—*06*
U.S. Cl. D74—17 B

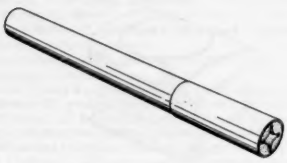
229,786
ENEMA BAG
Norbert Kinkel, 2 Wiesenstrasse, 6373 Weisskirchen, Taunus, Germany, and Eckhardt Knauff, 28 Leitziger Strasse, 6205 Bleidenstadt, Germany
Filed July 16, 1971, Ser. No. 163,550
Claims priority, application Germany Jan. 9, 1971
Term of patent 14 years
Int. Cl. D24—*04*
U.S. Cl. D83—1 U



229,787
COMBINED CUP TRAY AND ASH RECEIVER
Benjamin Pitts, 9929 Chenlot, Detroit, Mich. 48204
Filed Mar. 7, 1972, Ser. No. 232,657
Term of patent 14 years
Int. Cl. D27—*03*
U.S. Cl. D85—2 K



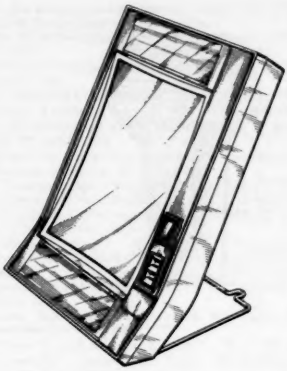
229,788
FILTERED CIGARETTE
Richard M. Berger, Richmond, Va., assignor to American Filtrona Corporation, Richmond, Va.
Original design application June 21, 1971, Ser. No. 155,371. Divided and this application Apr. 11, 1973, Ser. No. 350,021
Term of patent 14 years
Int. Cl. D27—*01*
U.S. Cl. D85—6 B



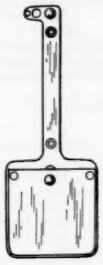
229,789
FILTERED CIGARETTE
Richard M. Berger, Richmond, Va., assignor to American Filtrona Corporation, Richmond, Va.
Original design application June 21, 1971, Ser. No. 155,371. Divided and this application Apr. 11, 1973, Ser. No. 350,022
Term of patent 14 years
Int. Cl. D27—*01*
U.S. Cl. D85—6 B

229,790
FILTERED CIGARETTE
Richard M. Berger, Richmond, Va., assignor to American Filtrona Corporation, Richmond, Va.
Original design application June 21, 1971, Ser. No. 155,371. Divided and this application Apr. 11, 1973, Ser. No. 350,024
Term of patent 14 years
Int. Cl. D27—*01*
U.S. Cl. D85—6 B

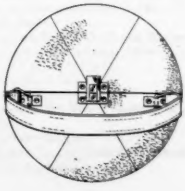
229,791
MAKE-UP MIRROR
Dominic De Fano, Palatine, and Robert I. Kallman, Elburn, Ill., assignors to Clairol Incorporated, New York, N.Y.
Filed Nov. 8, 1972, Ser. No. 304,682
Term of patent 14 years
Int. Cl. D28—*03*
U.S. Cl. D86—10 H



229,792
WALLET
Matt J. Vitol, Woodstock, Va. 22664
Filed Oct. 7, 1971, Ser. No. 187,599
Term of patent 14 years
Int. Cl. D3—*02*
U.S. Cl. D87—3 R

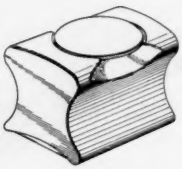


229,793
HANDBAG
Clarence V. Tibbs, 7119 Kingston Pike, Knoxville, Tenn. 37919
Filed Jan. 12, 1973, Ser. No. 323,142
Term of patent 14 years
Int. Cl. D3—*01*
U.S. Cl. D87—3 F



229,794
ELECTRIC SHAVER
Robert O. Ernest, Oak Park, Ill., assignor to Sunbeam Corporation, Chicago, Ill.
Filed Aug. 4, 1972, Ser. No. 278,120
Term of patent 14 years
Int. Cl. D28—*03*
U.S. Cl. D95—3 A

229,795
RAZOR
Bartholomew A. Holohan, 1486 Deer Path, Mountainside, N.J. 07092
Filed Nov. 3, 1971, Ser. No. 195,540
Term of patent 14 years
Int. Cl. D28—*03*
U.S. Cl. D95—3 A



LIST OF PATENTEES

TO WHOM

PATENTS WERE ISSUED ON THE 1ST DAY OF JANUARY, 1974

NOTE.—Arranged in accordance with the first significant character or word of the name (in accordance with city and telephone directory practice).

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A/S Kongsberg Vapenfabrik: *See*—
Ulrichsen, Borre Bengt, 3,783,036.

Aaron, Maurice L.: *See*—
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AB Gustavsbergs Fabriker: *See*—
Hecktor, Bengt-Olof Ingemar, 3,782,335.

AB Ljungmans Verkstader: *See*—
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Abbey, Henry. Covered ice bucket. 3,782,583, Cl. 220-31.00s.

Abbott, Edward A., Jr.; and Blanchard, David I., to Hughes Aircraft Company. Radiation tracking system. 3,783,271, Cl. 250-203.00r.

Abbott, Thomas I.; Dappen, Glen M.; and Irani, Nayyir F., to Eastman Kodak Company. Diffusion transfer reception elements, film units and processes therefor. 3,782,936, Cl. 96-3.000.

Abe, Taizo, to Ayumi Industries Company, Limited. Oil diffusion vacuum pump. 3,782,861, Cl. 417-153.000.

Abel, Irving Raymond, to United States of America, National Aeronautics and Space Administration. Optical instruments. 3,782,835, Cl. 356-216.000.

Accles & Shelvoke Limited: *See*—
Hancox, Roger John, 3,782,018.

Ackermann, Karl, to Bosch, Robert, Photokino G.m.b.H. Battery charging arrangement with automatic charge termination circuit having input ripple suppression. 3,783,365, Cl. 320-39.000.

Adachi, Takeshi: *See*—
Sato, Chosei; Adachi, Takeshi; and Inoy, Hiroyuki, 3,783,122.

Adamovske Strojirny, narodni podnik: *See*—
Jurny, Josef; and Sedlak, Vaclav, 3,782,280.

Adams, Benjamin Baker, Jr., to RCA Corporation. Filamentary cathode mount and mounting method. 3,783,327, Cl. 313-272.000.

Adams, Kenneth D.; and D'Orio, Salvatore A., to Singer Company, The. Simplified basting stitch mechanism. 3,782,311, Cl. 112-158.00r.

Adams, Norbert: *See*—
Intrator, Alexander M.; and Adams, Norbert, 3,781,978.

Adams, Norbert; and Baum, Edward A., to General Electric Company. Electorstatic bonding process. 3,783,218, Cl. 219-10.530.

Adams-Russell Co., Inc.: *See*—
Patterson, William L., 3,783,321.

Agfa-Gevaert Aktiengesellschaft: *See*—
Boie, Immo; Schulte, Walter; Pelz, Willibald; Nittel, Fritz; and Kunitz, Friedrich-Wilhelm, 3,782,956.
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Mucke, Bruno; Lohmer, Karl; and Himmelmann, Wolfgang, 3,782,955.
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Ohlschlager, Hans; Ghys, Theofiel Hubert; Verhille, Karel Eugeen; and Kampfer, Helmut, 3,782,934.
Ranz, Erwin; Himmelmann, Wolfgang; Bergthaller, Peter; and Hocker, Jurgen, 3,782,950.

Agfa-Gevaert N.V.: *See*—
Smolderln, Albert Emiel, 3,782,067.

Ahlstrom, A. Osakeyhtio: *See*—
Jafs, Daniel; Marttala, Tapani; Christiansen, Kai; and Hakulin, Bertel, 3,783,095.

Ahmad, Iqbal, to United States of America, Army. Process for electrodeposition of metals under the influence of a centrifugal force field. 3,783,110, Cl. 204-12.000.

Air Reduction Company, Incorporated: *See*—
Tramposch, Ralph F., 3,783,009.

Aisin Seiki Kabushiki Kaisha: *See*—
Kobayashi, Akira, 3,782,110.

Aitken, Michael D. Fully energized plasma jet. 3,783,227, Cl. 219-121.00p.

Akado, Hajime: *See*—
Kamo, Hideo; Akado, Hajime; and Kato, Yasutosi, 3,782,349.

Akesson, Stellan. Valve means, particularly automatic waste gas valve means. 3,782,627, Cl. 236-93.000.

Akhmedov, Baba Abbas Ogly: *See*—
Kheifeis, Georgy Naumovich; Plyatskovsky, Oskar Alexandrovich; Yankovsky, Vladimir Mikhailovich; Akhmedov, Baba Abbas Ogly; Lange, Zelman Iosifovich; Golubev, Jury Vasielievich; Solomadina, Elizaveta Andreevna; Statnikov, Vladimir Mikhailovich; Ibragimov, Irafil Naftali Ogly; Guliev, Tagi Rza Ogly; and Porokhovnikov, Jury Zinovievich, 3,782,160.

Akino, Tadaharu: *See*—
Osada, Hisasi; and Akino, Tadaharu, 3,783,417.

Aktienbolaget Bofors: *See*—
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Van Vessem, Cornelis J.; and Geerdes, Dirk J. F., 3,782,173.

Albers, Gene H.: *See*—
Weiler, Raywood C.; and Albers, Gene H., 3,782,775.

Alberto, Pietro. Automatic machine for forming rolls of piece-fabrics having a pre-established length and discarding of defective fabric. 3,782,664, Cl. 242-56.00r.

Aldinger, Ulrich, to Bosch, Robert, G.m.b.H. Pressure balanced radial piston machine. 3,782,245, Cl. 91-6.500.

Alexander, George L. Spare tire carrier. 3,782,568, Cl. 214-454.000.

Alexander, Stephen H.; and Holberg, Arnold J., to Bank of New York, N.Y., The, mesne. Asphaltic coatings. 3,782,988, Cl. 106-282.000.

Alexeev, Jury Evgenievich: *See*—
Kozhevnikov, Sergei Nikolaevich; Tkachenko, Arkady Semenovich; Verderevsky, Vadim Anatolievich; Cherevik, Ivanovich; Alexeev, Jury Evgenievich; Bondarenko, Alexandr Grigorievich; and Vyshinsky, Valery Trofimovich, 3,782,163.

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Alfano, Robert R.; and Shapiro, Stanely L., to G.T.E. Laboratories, Inc. Picosecond spectrometer using picosecond continuum. 3,782,828, Cl. 356-85.000.

Alferov, Jury Fedorovich: *See*—
Medovar, Boris Izrailevich; Popov, Viktor Andreevich; Alferov, Jury Fedorovich; Bogachenko, Alexey Georgievich; and Latash, Jury Vadimovich, 3,781,935.
Medovar, Boris Izrailevich; Popov, Viktor Andreevich; Alferov, Jury Fedorovich; Bogachenko, Alexei Georgievich; and Latash, Jury Vadimovich, 3,783,168.

Alibert, Vernon F.; and Carey, Thomas H., to Columbia Research Laboratories, Inc. Signal generating device for use with a structure which is subjected to a range of vibrations. 3,783,309, Cl. 310-8.700.

Allemand, Pierre; and Havasse, Christian, to Rhone-Progil. Adjuvants for cements, mortars and concretes. 3,782,984, Cl. 106-90.000.

Allen Anchor Corporation: *See*—
Allen, George E., 3,782,058.

Allen, Donn W. Fuel storage cell. 3,782,588, Cl. 220-88.00r.

Allen, George E., to Allen Anchor Corporation. Tying devices for tying wooden members to composite brick and masonry walls. 3,782,058, Cl. 52-300.000.

Allen, Philip H., to H.J.J. Co., Inc. Screw holding driver. 3,782,432, Cl. 145-50.00e.

Alley, Bernard J.: *See*—
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Kolyer, John M.; and Kveglis, Albert A., 3,783,150.

Allington, Robert W., to Instrumentation Specialties Company. Dual beam optical system. 3,783,276, Cl. 250-226.000.

Allis-Chalmers Corporation: *See*—
Dandois, Charles L., 3,782,891.
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Almog, Ehud. Panels and method of making same. 3,783,082, Cl. 161-37.000.

Almond, Francis Martin; Shibley, Edward Albert; and Coroch, Brian Wilfrid, to Templebouough Rolling Mills Limited and British Ropes Limited. . 3,783,043, Cl. Treatment of hot-rolled steel.

Altenpohl, William F. Poultry shackle suspension. 3,781,946, Cl. 17-44.100.

Alter, Henry Ward; and Lovett, Daniel B., to General Electric Company. Alpha particle dosimeter. 3,783,292, Cl. 250-475.000.

Aluminium AG: *See*—
Moser, Werner; Buchi, Paul; and Weber, Peter, 3,782,655.

Aluminum Company of America: *See*—
Monks, Frank E., 3,783,071.
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American Air Filter Company, Inc.: *See*—
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American Metal Climax, Inc.: *See—*
Hubbard, S. Eugene; and Biebuyck, Lawrence P., 3,781,973.
American Micro-Systems, Inc.: *See—*
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Kantorski, Joseph W.; Smith, Donald A.; LaMarre, David A.; Hansen, Donald H.; and Thorburn, Milton R., 3,782,823.
American Potato Company: *See—*
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Amoth, Victor W.; Mitchell, Graham R.; and Popadick, Carl C., to General Electric Company. Vacuum type electric circuit interrupter. 3,783,213, Cl. 200-144.00b.
Amsted Industries Incorporated: *See—*
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Anderson, John Dale, to Hesston Corporation. Spring-loaded gauge roller. 3,782,086, Cl. 56-344.000.
Anderson, Lawrence, to Medical Incorporated. Method of forming rotatable suturing member on a device. 3,781,969, Cl. 29-445.000.
Anderson, Ronald W.; and Henry, William B., to Balance Technology, Inc. Method and apparatus for balancing segmented parts. 3,782,202, Cl. 73-455.000.
Anderson, William T.; and Wallace, Robert A., Jr., to DoAll Company. Numerically controlled machine tool. 3,783,253, Cl. 235-151.110.
Andersson, Jarl Anders; and Stadmark, Nils Hagert, to Alfa-Laval AB. Heat exchanger plates. 3,783,090, Cl. 161-166.000.
Ando, Yujiro: *See—*
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Anheuser-Busch, Incorporated: *See—*
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Anthes, John A.; and Vlnaty, Joseph, to Dravo Corporation. Process for direct reduction of iron oxide compacts. 3,782,920, Cl. 75-37.000.
Anthony, John W., to General Electric Company. Electric lamp having phosphor coating and heat deflector. 3,783,322, Cl. 313-42.000.
Anthony Manufacturing Corporation: *See—*
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Araki, Kunihiko, to Ricoh Co., Ltd. Data transmission device for use with interchangeable-lens-cameras. 3,782,261, Cl. 95-45.000.
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Katsuyama, Shigeo; Atsumi, Asami; Masahide, Watanabe; Tsutomu, Sato; Toshiaki, Norimatsu; and Eizo, Nakajima, 3,781,950.
Ashley, Eugene, to General Electric Company. Zero ullage injection valve. 3,782,241, Cl. 89-7.000.
Ashton, Donald M.; and Dubois, Richard, Jr., to Wagner Electric Corporation. Annunciator display. 3,782,016, Cl. 40-130.00e.
Associated Electrical Industries Limited: *See—*
Watson, John Merza, 3,783,280.
Atchisson, Maxwell G. Projectile launching apparatus. 3,782,021, Cl. 42-1.00f.
Atkins, Cedric D.; and Attaway, John A., to State of Florida, Department of Citrus. Essence for enhancing the flavor of citrus juices. 3,782,972, Cl. 426-192.000.
Atlantic Richfield Company: *See—*
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Atlee, Zed J.; and Kasten, Roy F., Jr., to Picker Corporation. X-ray tube having focusing cup with non-emitting coating. 3,783,323, Cl. 313-57.000.
Atlee, Zed J., to Picker Corporation. X-ray tube with improved control electrode arrangement. 3,783,333, Cl. 315-30.000.
Atomic Energy of Canada, Limited: *See—*
Blackstein, Frederick Paul, 3,782,681.
Atsumi, Asami: *See—*
Katsuyama, Shigeo; Atsumi, Asami; Masahide, Watanabe; Tsutomu, Sato; Toshiaki, Norimatsu; and Eizo, Nakajima, 3,781,950.
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Avery, Julian Miles. Aluminothermic production of magnesium and an oxidic slag containing recoverable alumina. 3,782,922, Cl. 75-67.000.
Avery, Leslie Ronald, to RCA Corporation. Frequency comparator system. 3,783,394, Cl. 328-134.000.
Ayala, Justino Ramos. Bidet attachment. 3,781,919, Cl. 4-7.000.
Ayres, Jones D., and Company Limited: *See—*
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Ayumi Industries Company, Limited: *See—*
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b Rosenberg, Elliot E.: *See—*
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Babcock & Wilcox Company, The: *See—*
Smith, Terrance M., 3,782,980.
Badalich, Frank C.; and Watterlohn, Roy H., to Bell & Howell Company. Filmstrip projector with synchronized sound. 3,782,811, Cl. 352-17.000.
Bader, Horst, to Eckardt, J. C., AG. Circuit for pneumatic controllers. 3,782,403, Cl. 137-86.000.
Badey, Paul E.; and Oppel, John A., to General Electric Company. Electric connector with relatively-movable terminals for outdoor, icing environment. 3,783,431, Cl. 339-2.00r.
Badische Anilin- & Soda-Fabrik Aktiengesellschaft: *See—*
Beck, Fritz; Haufe, Juergen; and Nohe, Heinz, 3,783,112.
Bahre and Greten GmbH KG: *See—*
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Baker, William J.; Galloup, Clifford L.; and Bos, John R., to Gardner-Denver Company. Cutting, stripping, and wrapping bit for insulated conductor wire. 3,781,932, Cl. 7-14.10r.

Bakewell, David, to Courtaulds North America, Inc. False twister. 3,782,088, Cl. 57-34.0hs.

Bakke, Jan Magnus; and Heikmann, Harald Erik, to Aktienbolaget Bofors. Process for the preparation of O-aminobenzonitrile. 3,783,142, Cl. 260-465.00e.

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Balaz, Joseph K., to Flinn & Draffein Engineering Co. Furnace door assembly. 3,782,304, Cl. 110-173.000.

Bald, Wilfried, to Siemag Siegener Maschinenbau GmbH. Process and mechanism for the operating of a rolling mill. 3,782,155, Cl. 72-14.000.

Balinski, Hnery A., to United States Gypsum Company. Cargo restraining bar. 3,782,295, Cl. 105-369.00b.

Ballance, John B.; Matas, Stephen J.; and Kundig, Konrad J. A., to Republic Steel Corporation. Low carbon high strength steel. 3,783,040, Cl. 148-36.000.

Ballin, Gene. Opener for disposable closure. 3,782,578, Cl. 215-46.00a.

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Barber Electrical Services Limited: *See—*
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Barbour, John P.; and Charbonnier, Francis M., to Field Emission Corporation. Pulsed vacuum arc operation of field emission X-ray tube without anode melting. 3,783,288, Cl. 250-414.000.

Bard, C.R., Inc. mesne: *See—*
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Bardot, Ernest Roger. Construction set and element thereof. 3,782,029, Cl. 46-26.000.

Barger, J. P.; Crandell, William H.; and Gardner, Thomas W., to Dynatech Corporation. Cryosurgical apparatus. 3,782,386, Cl. 128-303.100.

Barkley, John R.; and Brixner, Lothar H., to Du Pont de Nemours, E. I., and Company. Bistable optical switch utilizing lead phosphate or lead strontium phosphate crystals. 3,782,806, Cl. 350-149.000.

Barmag Barmer Maschinenfabrik Aktiengesellschaft: *See—*
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Barnard, Dominic Paul Edmund, to Smith Industries Limited. Electrical connections using discrete, electrically conductive particles. 3,783,242, Cl. 219-546.000.

Barnes, Dayton W.; and Chiles, Robert D., to Ja-San, Inc. Garment hanger. 3,782,612, Cl. 223-85.000.

Barnes, Edward, to BP Chemicals Limited. Production of wax heaters. 3,782,910, Cl. 44-40.000.

Barnett, David L.; Rose, Stanley E.; and Zurcher, Robert S., to Tally Corporation. Impact line printer. 3,782,278, Cl. 101-93.00c.

Barosko, John M., to Tenneco Inc. Control means for hydraulic jack. 3,782,689, Cl. 254-93.00r.

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Basa, Napoleon A. Dispenser device. 3,782,598, Cl. 222-49.000.

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Basso, Eugenio; Viviani, Gaetano; and Cartabia, Luigi, to Fabbrica Italiana Magnetic Morelli S.p.A. Electronic control device for intermittent operation of a windscreen wiper, particularly for motor vehicles. 3,783,362, Cl. 318-443.000.

Basson, John Edgar Baron: *See—*
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Bastian, Elmer, to Oak Industries, Inc. Method for coupling and bandpass control in UHF varactor tuners. 3,783,420, Cl. 334-39.000.

Bates, Arthur C., to I-T-E Imperial Corporation. Contacts for use in vacuum switch arrangements. 3,783,212, Cl. 200-144.000.

Bates, W. E., Engineering Co., Inc.: *See—*
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Bates, Walter E.: *See—*
Peterson, John D.; and Bates, Walter E., 3,783,332.

Batorewicz, Valeria; and Loving, Jerry P., to Housing Systems Corporation. Expandable prefabricated building system and method of construction. 3,782,063, Cl. 52-63.000.

Batorski, Edward J., to Textron, Inc. Gear finishing apparatus. 3,782,041, Cl. 51-33.00w.

Batteux, Armand, to Societe Anonyme Francaise du Ferodo. Vane wheels. 3,782,855, Cl. 418-180.000.

Bauder, Armin: *See—*
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Bax, Roy C.: *See—*
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Bayer, Edward Bernard. Coding of articles. 3,783,246, Cl. 235-61.12r.

Bean, Charles, to General Electric Company. Measurements of particles and molecules. 3,783,117, Cl. 204-180.00r.

Bean, Frederick Roland: *See—*
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Beasom, James D., to Harris-Intertype Corporation, mesne. Field effect transistor. 3,783,349, Cl. 317-235.00r.

Beaudet, Maurice, to Galt Equipment Ltd. Portable heating unit. 3,782,628, Cl. 237-123.00c.

Beazer, Charles W., to Phillips Petroleum Company. Fluid containment system. 3,782,581, Cl. 220-9.00a.

Bechtel International Corporation: *See—*
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Beck, Fritz; Haufe, Juergen; and Nohe, Heinz, to Badische Anilin- & Soda-Fabrik Aktiengesellschaft. Manufacture of sebacic acid diesters. 3,783,112, Cl. 204-59.00r.

Beck, Robert J.; Heikkinen, Wilbert; and Johnson, Robert T., to Brunswick Corporation, The. Friction lock for outboard motor throttle hand grip. 3,782,219, Cl. 74-531.000.

Beck, Roderick; Harmon, James F.; Shatila, Mounir A.; Richins, David A.; and Lach, John, to American Potato Company. French fry cut potato dough piece. 3,782,969, Cl. 426-145.000.

Becker, Richard S., to Bio-Tek Instruments, Inc. Ground safe system. 3,783,340, Cl. 317-18.00b.

Beckmann, Gunter: *See—*
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Beckwith, Robert W. Phase condition indicating circuit. 3,783,341, Cl. 317-27.00r.

Becton, Dickinson and Company: *See—*
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Beden, Moses. Coupling. 3,782,135, Cl. 64-20.000.

Begley, Donald E.: *See—*
Cook, Melvin W.; and Begley, Donald E., 3,783,127.

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Bell & Howell Company: *See—*
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Bell & Howell Japan, Ltd.: *See—*
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Bell, Christy W.; and Titus, Charles H., to Electro-Petroleum Inc. mesne. Electro-thermal process for promoting oil recovery. 3,782,465, Cl. 166-248.000.

Bell, David, to Health Technology Labs, Inc. Computer controlled defibrillator. 3,782,389, Cl. 128-419.00d.

Bell, Leo A. Mud weighing unit. 3,782,199, Cl. 73-434.000.

Bell Telephone Laboratories, Inc.: *See—*
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Beloit Corporation: *See—*
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Beltone Electronics Corporation: *See—*
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Belue, James C.; and Schaefer, Robert S., to Owens-Corning Fiberglas Corporation. Method of treating tacky strand material. 3,782,996, Cl. 117-45.000.

Bemis Company, Inc.: *See—*
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Bendall, Wilfrid H. Air-cooled rotary internal combustion engine. 3,782,107, Cl. 60-39.610.

Bendix Corporation, The: *See—*
Cramer, Robert L.; and Henneman, John W., 3,782,402.
Daly, Daniel G.; and Ritacco, Gerardo A., 3,782,997.
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Joslyn, Carl R.; and Dyce, John W., 3,781,986.
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Beneteau, Donald J. Multiple welding electrode. 3,783,226, Cl. 219-120.000.

Benker, Horst Wilhelm, to Bunker Ramo Corporation. Adjustable self-locking clamp for wires, pipes and other structural shapes. 3,782,842, Cl. 403-374.000.

Benkowski, Frank J., to Warner & Swasey Company, The. Boom slider assembly. 3,782,790, Cl. 308-3.00r.

Benner, Willard J.: *See*—
Remington, John L.; and Benner, Willard J., 3,782,800.

Bennett, Allan I., to Westinghouse Electric Corporation. Means for calibrating a four-probe resistivity measuring device. 3,783,375, Cl. 324-64.000.

Bennett, William C., to Novar Corporation. Apparatus for operating on tape in tape cartridges. 3,782,731, Cl. 274-4.00d.

Berg, Peter G.: *See*—
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Berger, Franz: *See*—
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Bergey, John M., to Time Computer, Inc., mesne. Solid state watch with magnetic setting. 3,782,102, Cl. 58-50.00r.

Berggren, John L. Counterbalancing assembly for air motivated device. 3,782,222, Cl. 74-590.000.

Bergh Bros. Co., Inc.: *See*—
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Bergh, George G.; and Bergh, Robert G., to Bergh Bros. Co., Inc. Hinge mounting means. 3,782,592, Cl. 220-31.00r.

Bergh, Robert G.: *See*—
Bergh, George G.; and Bergh, Robert G., 3,782,592.

Bergthaller, Peter: *See*—
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Berkey-Colortran, Inc.: *See*—
Hamilton, Fenton D.; Glickman, Richard B.; Hartz, George R.; and Tawil, Joseph N., 3,783,264.

Berlin, Aaron S.; Little, Vincent C.; and Leadore, Toney, to United States of America, Army. Removable firing pin assembly munition. 3,782,288, Cl. 102-64.000.

Berlin, Daniel, to General Home Products Corporation. Pivotal body-supporting exercising apparatus. 3,782,717, Cl. 272-58.000.

Bermges, Manfred, to Palitex Project Company-G.m.b.H. Closure means for threading slot of balloon restrainer device for textile yarn processing machine. 3,782,098, Cl. 57-106.000.

Bernstein, Frank H., to Singer Company, The. Radar simulator. 3,783,172, Cl. 35-10.400.

Bethlehem Steel Corporation: *See*—
Cleary, Harold J.; Horton, James B.; and Melloy, George F., 3,782,909.

Bettcher Industries, Inc.: *See*—
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Bettcher, Louis A., to Bettcher Industries, Inc. Comestible slicing apparatus. 3,782,230, Cl. 83-174.100.

Beulink, Rombout: *See*—
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Beverage-Air Sales Company: *See*—
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Biba, Edward A.; and Sowinski, Leonard A., to Mandex Manufacturing Company, Inc. Connector. 3,783,432, Cl. 339-12.00v.

Bibl, Josef: *See*—
Schiesterl, Gerhard; and Bibl, Josef, 3,783,207.

Bick, Maurice; and Lochet, Jean A., to Auric Corporation. Gold plating bath for barrel plating operations. 3,783,111, Cl. 204-46.000.

Bickl, Horst: *See*—
Kohn, Erwin; Bickl, Horst; Pfeifer, Josef; and Schrecke, Hans-Joachim, 3,782,820.

Bidwell, Robert E.; and Kurtz, Leonard D., to Deknatel, Inc. Sound muffler for drainage device. 3,782,497, Cl. 181-33.000.

Biebuyck, Lawrence F.: *See*—
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Biebuyck, Lawrence P.: *See*—
Hubbard, S. Eugene; and Biebuyck, Lawrence P., 3,781,973.

Bielfeldt, Heinz; and Birkenhagen, Manfred. Releasable lock for a bolt of a firearm. 3,782,022, Cl. 42-70.00r.

Bigelow, John H., to Du Pont de Nemours, E. I., and Company. Polyhedral borane fogged direct-positive silver halide emulsion containing an organic sulfoxide. 3,782,959, Cl. 96-107.000.

Biggs, William W.; and Clegg, Max D., to Lambda Instruments Company. Method and apparatus for measuring area. 3,782,833, Cl. 356-158.000.

Billmaier, Joseph F.; and Sprague, Gordon P., to Reliance Electric Company. Multiplex system for elevator control. 3,782,504, Cl. 187-29.00r.

Billy, Emile: *See*—
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Binder, Rudolf: *See*—
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Bio-Tek Instruments, Inc.: *See*—
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Bird, David A., to Honeywell Information Systems, Inc. Low frequency oscillator circuit. 3,783,408, Cl. 331-135.000.

Birdwell, James A.; Barton, John R.; and Gardner, Clarence G., to Southwest Research Institute. Method and circuit for compensating barkhausen signal measurements in magnetic materials having a variable geometry. 3,783,370, Cl. 324-34.00r.

Birge, William T., to Kelsey-Hayes Company. Inspection hole cover. 3,782,513, Cl. 188-206.00r.

Birkenhagen, Manfred: *See*—
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Bishay, Adli; El Hamamsy, Mahmoud Aly; and Omar, Mohammed Hosny, to United States of America, Air Force. Glass showing electrical switching phenomena. 3,782,958, Cl. 106-47.00r.

Bishop, Robert C.; and Shanbrom, Edward, to Baxter Laboratories, Inc. Thrombin assay system. 3,783,103, Cl. 195-99.000.

Bismuth, Guy: *See*—
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Bitterlich, Johannes. Method for automatically controlling the punching of control cards for making patterned textiles in conformity with a sample design. 3,782,625, Cl. 234-2.000.

Bjork, Jan, to Svenska Aktiebolaget Bramsregulator. Arming device for a submersible explosive weapon. 3,782,282, Cl. 102-16.000.

Bjorkman, Harry K., to Udylite Corporation. Apparatus and method for making chlorine hydrate from high energy density battery electrolyte and chlorine. 3,783,027, Cl. 136-86.00c.

Bjorksten, Johan: *See*—
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Black, Floyd P. Drying apparatus for grain and the like. 3,782,004, Cl. 34-174.000.

Black, James A.; and Farwell, Harry Russell. Printing press and web registry system. 3,783,059, Cl. 156-64.000.

Black, James M., to United States of America, National Aeronautics and Space Administration. Full-wave modulator-demodulator amplifier apparatus. 3,783,399, Cl. 330-9.000.

Blackman, Calvin C. Multiple pedestal furnace installation. 3,782,893, Cl. 432-206.000.

Blackman, Calvin C. Coil separator. 3,782,894, Cl. 432-260.000.

Blackman, Elliot S.: *See*—
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Blackstein, Frederick Paul, to Atomic Energy of Canada, Limited. Thermally actuated and thermally sealed valve. 3,782,681, Cl. 251-11.000.

Blackwell, William L. Tap arrangement useful with measuring means. 3,782,407, Cl. 137-317.000.

Blake, Donald L., to Rockwell International Corporation. Textile spindle. 3,782,660, Cl. 242-46.210.

Blanchard, David I.: *See*—
Abbott, Edward A., Jr.; and Blanchard, David I., 3,783,271.

Blankenhorn, Charles F.: *See*—
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Blatt, Leland F. Toggle clamp with detent open guided arm. 3,782,712, Cl. 209-228.000.

Blattner, Dietmar: *See*—
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Blattner, Hans: *See*—
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Blevins, Maurice B., to Deering Milliken Research Corporation. Method and apparatus for detecting flaws in a fabric web. 3,783,296, Cl. 250-572.000.

Blohm, Thomas R.: *See*—
Grisar, Johann Martin; and Blohm, Thomas R., 3,783,162.

Bloom, John A.; and Wakefield, Gene F., to Texas Instruments, Incorporated. Metal carbonitrile coatings. 3,783,007, Cl. 117-95.000.

Boardman, H. L., Inc.: *See*—
Boardman, Harry Lynn, 3,782,204.

Boardman, Harry Lynn, to Boardman, H. L., Inc. Apparatus and methods for recording acceleration. 3,782,204, Cl. 73-492.000.

Bobb, Lloyd J., 1/2 to Pond, Chester C. and Speaker system and electrostatic speaker. . 3,783,202, Cl. 179-111.00r.

Boehringer Ingelheim G.m.b.H.: *See*—
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Boekkooi, Anton; Luursema, Meerten; and Tol, Taeke, to U.S. Philips Corporation. Ignition arrangement for a discharge tube. 3,782,258, Cl. 95-11.50r.

Boerner, Gerhard, to Bosch, Robert, Photokino G.m.b.H. Photographic apparatus with automatic diaphragm adjusting means. 3,782,255, Cl. 95-10.00c.

Bogachenko, Alexei Georgievich: *See*—
Medovar, Boris Izrailevich; Popov, Viktor Andreevich; Alferov, Jury Fedorovich; Bogachenko, Alexei Georgievich; and Latash, Jury Vadimovich, 3,783,168.

Bogachenko, Alexey Georgievich: *See*—
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Boie, Immo; Schulte, Walter; Pelz, Willibald; Nittel, Fritz; and Kunitz, Friedrich-Wilhelm, to Agfa-Gevaert Aktiengesellschaft. Light-sensitive color photographic material with indazolone color coupler. 3,782,956, Cl. 96-100.000.

Boileau, Jacques, to Compagnie Generale des Etablissements Michelin, raison sociale Michelin & Cie. Tire having carcass cords describing S-shaped and Z-shaped path. 3,782,441, Cl. 152-356.000.

Bolkey, Harold B.: *See—*
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Boll, Martin William; and MacRobbie, Robert Murray, to Richmond Screw Anchor Co. Concrete supporting form and a hanger therefor. 3,782,675, Cl. 249-23.000.

Boll, Martin William; and MacRobbie, Robert Murray, to Richmond Screw Anchor Co. Concrete supporting form and a hanger therefor. 3,782,676, Cl. 249-23.000.

Bolton, Richard H., to Eastman Kodak Company. Lens gimbaling and carriage release apparatus. 3,782,807, Cl. 350-255.000.

Boltz, Ronald R.; and Ojala, William K., to Ford Motor Company. Fuel injection apparatus. 3,782,639, Cl. 239-405.000.

Bomball, William A.; Drury, Raymond L., Jr.; Nevin, Charles S.; and Witmer, Ralph C., II, to Staley, A. E., Manufacturing Company. Vicinal halohydrins prepared from olefins containing carbon atoms. 3,782,987, Cl. 106-271.000.

Bondarenko, Alexandr Grigorievich: *See—*
Kozhevnikov, Sergei Nikolaevich; Tkachenko, Arkady Semenovich; Verderevsky, Vadim Anatolievich; Cherevik, Ivanovich; Alexeev, Jury Evgenievich; Bondarenko, Alexandr Grigorievich; and Vyshinsky, Valery Trofimovich, 3,782,163.

Bondina Limited: *See—*
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Bond's-Wear Pty. Limited: *See—*
Lee, Harold Barry, 3,782,309.

Bone, Donald, to Hilti Aktiengesellschaft. Repair of lifting lugs on ingot moulds. 3,781,965, Cl. 29-401.000.

Bonham, James A.; and Petrellis, Panayotis C., to Minnesota Mining and Manufacturing Company. Dry positive-acting photoresist. 3,782,939, Cl. 96-35.100.

Borachok, William: *See—*
Stretton, Joseph Blake; and Borachok, William, 3,781,991.

Borden, Inc.: *See—*
Columbus, Peter Spiros, 3,782,600.

Bos, John R.: *See—*
Baker, William J.; Galloup, Clifford L.; and Bos, John R., 3,781,932.

Bosch, Karl, to Gesipa, Gesellschaft fur Internationale. Riveting tongs for blind rivets. 3,782,165, Cl. 72-391.000.

Bosch, Robert, G.m.b.H.: *See—*
Aldinger, Ulrich, 3,782,245.
Frister, Manfred, 3,782,853.
Kammerer, Heinz; and Moller, Heinz, 3,782,353.
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Schmidt, Peter Jurgen; and Kizler, Harald, 3,782,347.
Scholl, Hermann; Mauch, Harald; Rittmannsberger, Norbert; and Soll, Wolfgang, 3,782,339.
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Bosch, Robert, Photokino G.m.b.H.: *See—*
Ackermann, Karl, 3,783,365.
Boerner, Gerhard, 3,782,255.

Bosman, Alfred E. F., to Lee, Raymond, Organization, Inc., The. Photographic enlarger. 3,782,821, Cl. 355-70.000.

Bosshard, Fritz. Book binding method and machine therefor. 3,782,306, Cl. 112-21.000.

Boulanger, Henry J., to Texas Instruments, Incorporated. Keyboard switch matrix assembly with improved guide means for reducing transfer of bounding motion to movable conductor. 3,783,205, Cl. 200-5.00a.

Bould, Fred: *See—*
Cleaveland, Charles M.; and Bould, Fred, 3,783,209.

Bowen, John G. Serum skimmer. 3,782,548, Cl. 210-94.000.

Bowen, Kenneth, to Bowens Sales & Service Limited. Electronic flash lighting equipment. 3,783,338, Cl. 315-241.00p.

Bowens Sales & Service Limited: *See—*
Bowen, Kenneth, 3,783,338.

Bowles Fluidics Corporation: *See—*
Jones, Donnie Roland, 3,782,323.

Bown, Delos L.: *See—*
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Boyd, Gordon A.; and Berger, Franz, to Autologic Limited. Machine tools. 3,782,226, Cl. 74-821.000.

Boyd, James C., to National Cash Register Company, The. Electrical test apparatus including high gain amplifier circuit. 3,783,372, Cl. 324-158.00t.

Boylan, John R.: *See—*
Gallagher, Bernard J.; Shufflebarger, Earl D.; Simko, David M.; Medvick, Richard J.; Boylan, John R.; and Danko, Oliver L., 3,782,685.

BP Chemicals Limited: *See—*
Barnes, Edward, 3,782,910.

Bradley, Donald A., to Cushman Electronics, Inc. Frequency selective level meter with an automatic distortion. 3,783,380, Cl. 324-130.000.

Brandenburg, Klaus, to U.S. Philips Corporation. Thermodynamic reciprocating machine with temperature-controlled fuel supply to burner. 3,782,120, Cl. 60-524.000.

Brander, Richard: *See—*
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Brandis, Helmut; and Oppenheim, Rudolf, to Deutsche Edelstahlwerke GmbH. Ferritic heat-resistant steel. 3,782,925, Cl. 75-124.000.

Braun, Arthur R. Sealing sleeve. 3,782,865, Cl. 418-56.000.

Braun, Franz; Ribnitz, Peter; and Huber, Willi, to Gema AG Apparatebau. Powder spray gun for spraying different color powders from a power channel of a spray gun. 3,782,632, Cl. 239-112.000.

Braun, Thomas A. Safety closure. 3,782,575, Cl. 215-9.000.

Brede, Alexander, III; Talmage, Charles Robert; and Tuttle, Elvin E., to Motor Wheel Corporation. Method and apparatus for sintering annular compacts. 3,782,931, Cl. 75-224.000.

Bredlow, Harvey F.: *See—*
Taylor, Thomas D.; and Bredlow, Harvey F., 3,783,345.

Breen, Alvin L.; and Lauterbach, Herbert G., to Du Pont de Nemours, E. I., and Company. Process and apparatus for jet-texturing yarn at high speed. 3,781,949, Cl. 28-1.400.

Brekke, Carroll E. Light liquid skimmer. 3,782,553, Cl. 210-242.000.

Bretino, Oliver. Material handling roller. 3,782,530, Cl. 198-127.00e.

Breuer, David R., to TRW Inc. Analog transmission gate. 3,783,307, Cl. 307-243.000.

Bridges, William A.; and Harris, Charles L. Pest exterminating apparatus. 3,782,026, Cl. 43-124.000.

Briggs & Stratton Corporation: *See—*
Harkness, Joseph R., 3,782,084.

Briggs and Stratton: *See—*
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Briggs, Eugene C.; and Reichel, Lee E., to Koehring Company. Compactor. 3,782,845, Cl. 404-133.000.

Brishka, Alexander R., to Sealectro Corporation. Mechanical coupling. 3,782,840, Cl. 403-361.000.

British Railways: *See—*
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British United Shoe Machinery Company Limited, The: *See—*
Clarke, Terence James Leonard; Quarmby, Robert Charles; and Lett, Philip Michael, 3,782,425.

Britnell, Douglas A., to Outboard Marine Corporation. Wheel assembly and method of manufacture. 3,782,779, Cl. 301-63.0pw.

Brixner, Lothar H.: *See—*
Barkley, John R.; and Brixner, Lothar H., 3,782,806.

Broadt, David R.; and Armstrong, Donald E., to GTE Sylvania Incorporated. Selective actuating mechanism for percussive photoflash lamp array. 3,783,260, Cl. 240-1.300.

Brockly, Albert T., to Koppers Company, Inc. Silica welding apparatus. 3,782,631, Cl. 239-85.000.

Brockmeyer, Bernard J.; Goedlke, Edward R.; Schweig, Melvern A.; and Tracy, William R., to Security Fire Door Company. Dumbwaiter loading and unloading apparatus. 3,782,563, Cl. 214-16.40r.

Brodhead, Albert S., to Thetford Corporation. Method and apparatus for forming hollow plastic articles. 3,783,078, Cl. 156-499.000.

Brodie, Donald E.; Camorota, Mathew; and Jakowski, Charles R. Adjustable temperature indicators. 3,782,194, Cl. 73-343.00r.

Brodwin, Morris E. Apparatus for measuring electromagnetic radiation. 3,783,448, Cl. 343-100.0me.

Broes, Frank, to Stradco, Inc. Hydraulic propulsion system. 3,782,114, Cl. 60-221.000.

Broghammer, Werner, to Dual Gebruder Steidinger, Firma. Driving device for oppositely rotating tone shafts of a sound recording device. 3,782,656, Cl. 242-201.000.

Brook, Greville B.; and Iles, Roger F., to Fulmer Research Institute, Limited. Treatment of alloys. 3,783,037, Cl. 148-11.50r.

Brothers, Jack, 70% to Pentel, Jerry. Sealing means. 3,782,587, Cl. 220-46.00r.

Brown, Alexander M. Vehicular safety system. 3,782,756, Cl. 280-150.00b.

Brown, Donald, to Westinghouse Air Brake Company. Combined overspeed and safety interlock for vehicle control. 3,782,782, Cl. 303-13.000.

Brown Engineering Corporation: *See—*
Browne, Ronald O.; and Huffman, James L., 3,781,920.

Brown, Gary G., to Northrop Corporation. Method of forming fusible reinforced polymer films and resulting composite structure. 3,783,068, Cl. 156-173.000.

Brown, James D.: *See—*
Spencer, William H.; Dorius, John O.; and Brown, James D., 3,782,055.

Brown, John, to Qantix Corporation. Front projection screen made from a transparent material. 3,782,805, Cl. 350-129.000.

Brown, Omar L., to Fraze, Ermal C. Easy opening container wall. 3,782,586, Cl. 220-54.000.

Brown, Richard O., to Tri-Men Manufacturing, Inc. Gaseous fuel burner. 3,782,887, Cl. 431-353.000.

Brown, Richard T., Jr.: *See—*
Stoliar, Arthur P.; and Brown, Richard T., Jr., 3,782,824.

Brown, Robert Hulme, to C.A.V. Limited. Flashing lamp circuits. 3,783,337, Cl. 315-200.00a.

Brown, Ronald W. Dental pulp tester. 3,782,366, Cl. 128-21.00r.

Brown, Terence J., to USM Corporation. High frequency press with capacitive tuning. 3,783,217, Cl. 219-10.530.

Browne, Ronald O.; and Huffman, James L., to Brown Engineering Corporation. Waste discharge valve for toilet bowl. 3,781,920, Cl. 4-85.000.

Browning, Charles W. Knot tying device. 3,782,764, Cl. 289-17.000.

Brubaker, Wilson M. Hyperbolic field mass filter. 3,783,279, Cl. 250-292.000.

Bruck, George, to Avco Corporation. Waveform edge-shifting modulation system for video recording and reproduction. 3,783,410, Cl. 332-9.00r.

Brucken, Byron L., to General Motors Corporation. Heat-cleaning range construction. 3,782,360, Cl. 126-19.00r.

Brumfield, John C., to I-T-E Imperial Corporation. Positive on position indicator. 3,783,215, Cl. 200-153.00g.

Brundiek, Horst. Roller mill of the edge runner type. 3,782,646, Cl. 241-117.000.

Bruno, Gerald A.: *See*—
Czaplinski, Thomas V.; Bruno, Gerald A.; and Haney, Thomas A., 3,783,291.

Bruno, Onofrio P. Delaying arm fuze principle. 3,782,289, Cl. 102-76.000.

Brunswick Corporation: *See*—
Ellingsen, Raymond L., 3,782,321.
Hungerford, Daniel Comstock, 3,782,318.

Brunswick Corporation, The: *See*—
Beck, Robert J.; Heikkinen, Wilbert; and Johnson, Robert T., 3,782,219.

Bryant, Shirley: *See*—
Lontz, John Frank; and D'Alonzo, Constance Anthony, 3,782,974.

Buccicone, Dario, to Bucciconi Engineering Co., Inc. Magnetic rail conveyor. 3,782,529, Cl. 198-41.000.

Bucciconi Engineering Co., Inc.: *See*—
Buccicone, Dario, 3,782,529.

Buchi, Paul: *See*—
Moser, Werner; Buchi, Paul; and Weber, Peter, 3,782,655.

Buck, Willard E. Simplified flat mirror scanner. 3,782,803, Cl. 350-7.000.

Budzich, Tadeusz, to Weatherhead Company, The. Brake anti-skid system. 3,782,785, Cl. 303-21.00f.

Budzyna, Edward S., to Rockwell International Corporation. Weft yarn control device. 3,782,421, Cl. 139-122.00w.

Buedel, Charles K.; and Caputo, James P., to GTE Automatic Electric Laboratories Incorporated. Data handling system maintenance arrangement for processing system trouble conditions. 3,783,255, Cl. 235-153.0ak.

Bullard, Haran W., to United States Steel Corporation. Manipulator. 3,782,162, Cl. 72-250.000.

Bumb, Frank C., Jr., to California Data Machines. Tape transport dual reel drive from single capstan. 3,782,659, Cl. 242-201.000.

Bumpstead, John, to Anthony Manufacturing Corporation. Part circle sprinkler. 3,782,638, Cl. 239-242.000.

Bundy, John E., to Dunlop, Limited. Electric motor speed control systems. 3,783,360, Cl. 318-327.000.

Bunker Ramo Corporation: *See*—
Benker, Horst Wilhelm, 3,782,842.

Bunn, Clinton O., to Col-Mont Corporation. Method of and apparatus for the recovery of oil from water. 3,783,129, Cl. 210-30.000.

Burch, Daniel G.; Liang, Po-Lung; Pierce, Stanely L., Jr.; and Winn, William C., to Ford Motor Company. Mechanical torque sensor for a hydrokinetic torque converter. 3,782,186, Cl. 73-136.00r.

Burdette, Fredrick E.: *See*—
Egli, Hans; Burdette, Fredrick E.; and Nancarrow, James H., 3,782,850.

Bures, Ladislav; Rajnoha, Jaroslav; Chrtek, Milan; Cerny, Miroslav; Doudlebsky, Ctibor; and Hybl, Josef, to Elitex, Zavody Textilniho Strojirenstvi. Method and arrangement for withdrawing air from spinning units. 3,782,095, Cl. 57-56.000.

Burg, Karlheinz: *See*—
Grossmann, Hans-Hermann; Burg, Karlheinz; and Wolters, Ernst, 3,783,145.

Burge, Harland L.; and Rodewald, Newell C., to TRW Inc. Foam cooling and acoustic damping for internal combustion engines. 3,782,116, Cl. 60-258.000.

Burge, Theodor, to Sika AG. Aluminum sulfate and calcium sulfate additives for improving the quality of cement, mortar and concrete and method for the production of such improved products. 3,782,991, Cl. 106-315.000.

Burger, Jacobus J.; De Jong, Gerrit; and Den Boer, Gradus J. J., to Koninklijke Nederlandsche Hoogovens en Staalfabrieken N.V. Method and a device for mixing and homogenizing of bulk material. 3,782,528, Cl. 198-36.000.

Burgin Electronic Grade Control, Inc.: *See*—
Burgin, Luther B., 3,782,844.

Burgin, Luther B., to Burgin Electronic Grade Control, Inc. Slope control for paving machines. 3,782,844, Cl. 404-84.000.

Burt, Harold S.; and Carvalho, Vasco O., to Conveyor Systems, Inc. Apparatus for stacking empty pallets. 3,782,562, Cl. 214-6.00m.

Burt, Harold S., to Conco Inc. Product picking stacker crane system. 3,782,564, Cl. 214-16.40a.

Bury, Allen J., to Molex, Inc. Electrical connector housing with built-in strain relief. 3,783,436, Cl. 339-107.000.

Busse, Claus; and Schlitt, Karl, to European Atomic Energy Community. Temperature stabilization system. 3,782,449, Cl. 165-32.000.

Butter, Karl; Kaufmann, Michael; and Dederra, Helmut, to Messerschmitt-Bolkow-Blohm Gesellschaft mit beschrankter Haftung. Regeneratively cooled thrust gas generator construction and method of making same. 3,782,118, Cl. 60-260.000.

B.V.S.: *See*—
Levin, Leon, 3,782,416.

Bye-Jorgensen, Jorgen; and Larsen, Gunnar, to Kruger, I. A/S. Decanting centrifuge for draining off water from sewage sludge. 3,782,623, Cl. 233-7.000.

Byland, Clarence H. Container in which a watthour meter and a meter socket are enclosably mountable and for readably displaying the watthour meter. 3,783,343, Cl. 317-107.000.

Byron, Melville, to Creative Patents & Products Limited. Controllable amusement device. 3,782,031, Cl. 46-244.00r.

Byrt, Graham Archie Bruce; Rosevear, Adrian Tuckwell; and Clarke, William Frank, to Masson Scott Thrissell Engineering Limited. Winding of continuous webs of sheet material. 3,782,665, Cl. 242-56.00r.

Cadcom, Incorporated: *See*—
Gebhardt, John C., 3,782,985.

Cain, James P., to Marlboro Manufacturing, Inc. Hydraulic door closer. 3,781,943, Cl. 16-52.000.

Calgon Corporation: *See*—
Kirwin, Roscoe Conklin; Hart, William Lewis; and Antonetti, Joseph Michael, 3,782,546.

Calicchia, David J.; and Modan, Michael M., to General Electric Company. Removal of catalyst residue from polyphenylene ethers. 3,783,147, Cl. 260-47.0et.

California Data Machines: *See*—
Bumb, Frank C., Jr., 3,782,659.

Callow, Donald Sidney; Capel, Brian John; and Evans, Charles Gervase Thorngate, to United Kingdom of Great Britain and Northern Ireland, Secretary of State for Social Services in Her Britannic Majesty's Government of the. Production of L-asparaginase. 3,78,102, Cl. 195-66.00a.

Calnek, Bruce W.; and Hitchner, Stephen B., to Cornell Research Foundation Inc. Highly potent, viable and stable cell-free virus preparations from cells infected with cell-associated viruses and method for obtaining the same. 3,783,098, Cl. 195-1.100.

Cambey, Leslie A., to Bell & Howell Company. Single magnet tandem mass spectrometer. 3,783,278, Cl. 250-299.000.

Camco, Incorporated: *See*—
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Cammi, Ferdinano. Anti-theft device. 3,782,862, Cl. 417-313.000.

Camorota, Mathew: *See*—
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Campagnuolo, Carl J; McKindra, Clayton D.; Sewell, Clinton J.; Villarroel, Fernando; and Woolston, Lionel L., to United States of America, Navy. Air-driven generator. 3,783,310, Cl. 310-15.000.

Campbell, James D., Jr.; and Maurey, Joseph E., to Maurey Manufacturing Corporation. Multiple groove pulley construction. 3,782,211, Cl. 74-230.17c.

Campbell, Scott V.: *See*—
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Campbell Soup Company: *See*—
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Campisi, Jimmy T. Binocular pocket. 3,782,614, Cl. 224-5.00v.

Canadian Patents and Development Limited: *See*—
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Cannelongo, Joseph Fredrick: *See*—
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Canning, Thomas N., to United States of America, National Aeronautics and Space Administration. Heater-mixer for stored fluids. 3,782,698, Cl. 259-60.000.

Canning, Thomas N., to United States of America, National Aeronautics and Space Administration. Bimetallic fluid displacement apparatus. 3,782,699, Cl. 259-98.000.

Canon Kabushiki Kaisha: *See*—
Fujii, Motoharu; Yamaguchi, Isao; Miyamoto, Kimio; Yamaguchi, Masaru; and Sano, Yozo, 3,783,290.
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Kanayama, Mitsutoshi; and Toda, Takako, 3,782,819.
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Caputo, James P.: *See*—
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Caputo, James P.; and O'Toole, Gerald, to GTE Automatic Electric Laboratories Incorporated. Data handling system maintenance arrangement for rechecking signals. 3,783,256, Cl. 235-153.0ak.

Carboni, Victor B.; and Harrison, Paul, to Consolidated Foods Corporation. Positive registration labeling gun. 3,782,279, Cl. 101-288.000.

Carborundum Company, The: *See*—
Carpenter, James H., Jr., 3,782,643.

Cardin, Carl J., Sr. Locking hitch box cover. 3,782,761, Cl. 280-507.000.

Carey, Thomas H.: *See—*
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Carl, Robert C.: *See—*
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Carlick, Daniel J.; Marra, Frank; and Sprenger, Gerhard E., to Sun Chemical Corporation. Isocyanate-modified esters. 3,783,151, Cl. 260-471.00c.
Carlile, Hollis B., Jr.: *See—*
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Carlton, Jacqueline H. Camouflaged device for temporary face lifting. 3,782,372, Cl. 128-76.00b.
Carpenter, James H., Jr., to Carborundum Company, The. Apparatus for conditioning a granular material. 3,782,643, Cl. 241-60.000.
Carr, George W., to Pullman Incorporated. Adapter for marker light. 3,783,265, Cl. 240-8.200.
Carr, Norman L.; Massoth, Franklin E.; Stahlfeld, Donald L.; and Young, John E., Jr., to Gulf Research & Development Company. Process for reducing the arsenic content of gaseous hydrocarbon streams by use of supported lead oxide. 3,782,076, Cl. 55-74.000.
Cartabia, Luigi: *See—*
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Carter, Carol Y. Protective device for automobile door handle and locks. 3,782,149, Cl. 70-455.000.
Cartwright, Thomas Edward; and Wightman, John Clifford, to Ayres, Jones D., and Company Limited. Food dispensing apparatus. 3,782,428, Cl. 141-115.000.
Carvalho, Vasco O.: *See—*
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Cascade Corporation: *See—*
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Casco, Ernest L.; and Kosic, Ralph F., to General Dynamics Corporation. Fixed spool winch mechanism. 3,782,692, Cl. 254-139.000.
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Cates, Robert E., to Marley Company, The. Hydraulic flow distribution system for multiple pass air cooled heat exchanger. 3,782,451, Cl. 165-38.000.
Cates, Robert L.; Mitchell, Robert M.; and Houx, James R., to Marley Company, The. Siphon breaking vent manifold for multiple pass heat exchanger. 3,782,453, Cl. 165-138.000.
Catlin, Kenneth A.: *See—*
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C.A.V. Limited: *See—*
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Ceplon, Peter Sol. Spacer system for use with pipes employing tracer lines. 3,782,452, Cl. 165-135.000.
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Chao, Pao J., to United States of America, Atomic Energy Commission, mesne. Method for producing evaporation inhibiting coating for protection of silicon-germanium and silicon-molybdenum alloys at high temperatures in vacuum. 3,783,031, Cl. 136-237.000.
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Gwin, Richard B.; Ballis, William L.; and Churchheus, Claude W., 3,783,223.
Chwastyk, Adolph M., to United States of America, Navy. FFT processor utilizing variable length shift registers. 3,783,258, Cl. 235-156.000.
Ciba-Geigy AG: *See—*
DeFago, Raymond; Angliker, Hans-Joerg; Holzrichter, Herbert; Kneubuehler, Werner; and Peter, Richard, 3,782,896.
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Cimprich, Francis J., to Goodrich, B. F., Company, The. Apparatus for heat conditioning of green tires for vulcanization. 3,783,241, Cl. 219-535.000.
Cintex Products, Inc.: *See—*
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Cities Service Company: *See—*
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Clark, Alex, Limited: *See—*
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Clark, Donald E.: *See—*
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Clark Equipment Company: *See—*
Williamson, William A., 3,782,488.
Clark, George William Joseph; Golder, Gerald William; and Hart, Frederick Leslie, to GKN Sankey Limited. Doors for vehicles. 3,782,036, Cl. 49-502.000.
Clark, Ralph E., to International Telephone and Telegraph Corporation. Air conditioning structure. 3,782,448, Cl. 165-16.000.
Clarke, Terence James Leonard; Quarmby, Robert Charles; and Lett, Philip Michael, to British United Shoe Machinery Company Limited, The. Manufacture of springs. 3,782,425, Cl. 140-103.000.
Clarke, William Frank: *See—*
Byrt, Graham Archie Bruce; Rosevear, Adrian Tuckwell; and Clarke, William Frank, 3,782,665.
Clauss, Manfred; and Clauss, Ulrich, to Clauss-Markisen Manfred u. Ulrich Clauss, Firma. Roll-up awning construction. 3,782,443, Cl. 60-22.000.
Clauss, Ulrich: *See—*
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Claw Corporation: *See—*
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Cleary, Harold J.; Horton, James B.; and Melloy, George F., to Bethlehem Steel Corporation. Corrosion resistant aluminum-zinc coating and method of making. 3,782,909, Cl. 29-196.200.

Cleaveland, Charles M.; and Bould, Fred, to Westinghouse Electric Corporation. Mechanism for holding and levering large draw out type circuit breakers. 3,783,209, Cl. 200-50.0aa.

Clegg, Max D.: *See—*
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Clement, Ralph C., to I-T-E Imperial Corporation. Clamping means for mechanical securement of enclosures to bus duct. 3,783,320, Cl. 317-99.000.

Cline, Harvey E.: *See—*
Walter, John L.; and Cline, Harvey E., 3,782,928.

Clinton, Geoffrey David: *See—*
Gold, Daniel; and Clinton, Geoffrey David, 3,783,293.

Cnobloch, Herbert; Kohlmuller, Hans; and Marchetto, Manfredo, to Siemens Aktiengesellschaft. Fuel cell and apparatus for water removal by evaporating the water from the electrolyte of fuel elements. 3,783,028, Cl. 136-86.00c.

Co-Ordinated Industries, Inc.: *See—*
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Coal Industry (Patents) Limited: *See—*
Parfitt, Norman Leslie Cyril, 3,782,511.

Coherent Radiation: *See—*
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Coherent Radiation Laboratories: *See—*
Mefferd, Wayne S.; and Hobart, James L., 3,783,407.

Cohn, Morris I.: *See—*
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Col-Mont Corporation: *See—*
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Colangelo, Peter J. Cutting tool setting device. 3,781,999, Cl. 33-185.000.

Coleco Industries, Inc.: *See—*
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Coleman, Clarence B., to Fabricated Metals, Inc. Follower for material containers. 3,781,942, Cl. 15-246.500.

Coleman Company, Inc., The: *See—*
Kester, Charles E.; and Hughes, Thomas E., 3,782,359.

Colton, Martin S.; and Schulman, Marvin, to General Foods Corporation. Process for producing coffee extract. 3,782,965, Cl. 426-432.000.

Columbia Gas System Service Corporation: *See—*
Gwin, Richard B.; Ballis, William L.; Churchheus, Claude W.; and Hutt, Bruce L., 3,783,222.
Gwin, Richard B.; Ballis, William L.; and Churchheus, Claude W., 3,783,223.

Columbia Research Laboratories, Inc.: *See—*
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Columbus, Peter Spiros, to Borden, Inc. Co-dispenser applicator and spatula cap. 3,782,600, Cl. 222-94.000.

Combustion Engineering, Inc.: *See—*
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Commercial Shearing Inc.: *See—*
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Commerical Solvents Corporation: *See—*
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Compagnie Generale des Etablissements Michelin, raison sociale Michelin & Cie: *See—*
Boileau, Jacques, 3,782,441.

Compare, Giampiero, to General Electric Information Systems S.p.A. Method for preparing artwork to be used in manufacturing of printed circuits. 3,782,942, Cl. 96-41.000.

Componetrol, Inc., mesne: *See—*
LeBlanc, Joseph A., Jr., 3,782,868.

Computer Identics Corporation: *See—*
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Concast AG: *See—*
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Conco Inc.: *See—*
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Pfister, Leo F.; and Rosenow, Darold K., 3,782,303.

Condo, Albert C.; and Reph, Clinton A., to Atlantic Richfield Company. Method of insulating cold substrates and the insulated substrates. 3,782,998, Cl. 117-66.000.

Connolly, James P.: *See—*
Leon, Henry A.; Connolly, James P.; Hitchman, Maurice J.; and Humbert, John E., 3,782,334.

Conrey, John P.: *See—*
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Consarc Corporation: *See—*
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Consolidated Bathurst Limited: *See—*
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Consolidated Foods Corporation: *See—*
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Consul GmbH: *See—*
Weissmann, Peter, 3,782,885.

Conti, Cesare L. Device for synchronizing the slackening of the needle thread with the thread cutting, with timing of the slackening of the needle thread and independent control of the delay of disc opening for lockstitch sewing machines. 3,782,313, Cl. 11-252.000.

Continental Gummi-Werke Aktiengesellschaft: *See—*
Depmeyer, Lothar, 3,782,440.

Conveyor Systems, Inc.: *See—*
Burt, Harold S.; and Carvalho, Vasco O., 3,782,562.

Cook, Harry E., to Ford Motor Company. Releasable caliper retaining means for a disc brake. 3,782,508, Cl. 188-73.300.

Cook, Harry E.; and Jamosi, Francis L., to Ford Motor Company. Caliper retaining means for a motor vehicle disc brake. 3,782,509, Cl. 188-73.300.

Cook, John W.: *See—*
Peterson, Robert S.; Cook, John W.; and Bolkey, Harold B., 3,782,151.

Cook, Melvin W.: *See—*
Cook, Melvin W.; and Begley, Donald E. (said Begley assor to said), 3,783,127.

Cook, Melvin W.; and Begley, Donald E., said Begley assor to said Cook, Melvin W. Combination concentrator-dialyzer device. 3,783,127, Cl. 210-22.000.

Cooper, Ernest A., to Foodmakers, Inc. Food handling equipment and method of use. 3,782,272, Cl. 99-450.700.

Coral Audio Corporation: *See—*
Sato, Tadao; and Ebihara, Toshio, 3,783,311.

Cordell, Carl R., Jr. Fish lure. 3,782,024, Cl. 43-42.310.

Corein, Marcel Pierre Ernest Marie: *See—*
Kohn, Karl Walter; and Corein, Marcel Pierre Ernest Marie, 3,782,357.

Corman, Daniel L. Longitudinal support post. 3,782,048, Cl. 52-738.000.

Cornell Research Foundation Inc.: *See—*
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Cornell, Richard D.: *See—*
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Corning Glass Works: *See—*
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Coroch, Brian Wilfrid: *See—*
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Cosden Oil & Chemical Company: *See—*
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Costanza, Carl; Weber, Walter W.; Setlejewski, Frank W.; and Frystak, Richard, to Bell & Howell Company. Slide return mechanism. 3,782,816, Cl. 353-112.000.

Cotton, Curran D., to Maytag Company, The. Clothes dryer control. 3,782,001, Cl. 34-45.000.

Couch, Francis O., to GTE Automatic Electric Laboratories Incorporated. Battery reversal detection. 3,783,198, Cl. 179-16.0aa.

Coulter Electronics, Inc.: *See—*
Hogg, Walter R.; and Coulter, Wallace H., 3,783,391.
Klein, Robert I.; and Hogg, Walter R., 3,783,247.

Coulter, Wallace H.: *See—*
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Courtaulds North America, Inc.: *See—*
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Cowan, John R.: *See—*
Dunn, James G.; Cowan, John R.; and Russo, Anthony J., 3,783,385.

Cowen, William E., Jr., to United Industrial Engineering Corporation. Shaft driver device and conveyor system embodying the same. 3,782,515, Cl. 192-56.00c.

Cowie, George Raymond, to Cowie Scientific, Limited. Taps. 3,782,686, Cl. 251-309.000.

Cowie Scientific, Limited: *See—*
Cowie, George Raymond, 3,782,686.

Cox, Harold Autrey, to Texas Instruments, Incorporated. Duty cycle control system. 3,783,366, Cl. 321-5.000.

Cox, Robert L. Adjustable router guide. 3,782,431, Cl. 144-144.500.

CPC International Inc., mesne: *See—*
Knight, James W., 3,782,964.

Cramer, Howard A., to Lowrance Electronics. Oxygen analyzer. 3,782,170, Cl. 73-19.000.

Cramer, Robert L.; and Henneman, John W., to Bendix Corporation, The. Servo controlled oxygen regulator. 3,782,402, Cl. 137-81.000.

Crandell, William H.: *See—*
Barger, J. P.; Crandell, William H.; and Gardner, Thomas W., 3,782,386.

Crane Packing Company: *See—*
Novosad, Eugene, 3,782,735.

Cranston, Albert E., III; and Lewis, Charles B., to Cranston Machinery Company, Inc. Lifting hook for bound packages. 3,782,772, Cl. 294-82.00r.

Cranston Machinery Company, Inc.: *See—*
Cranston, Albert E., III; and Lewis, Charles B., 3,782,772.

Creative Patents & Products Limited: *See—*
Byron, Melville, 3,782,031.

Crewe, Albert V., to Perkin-Elmer Corporation, The. Electron microscope. 3,783,281, Cl. 250-311.000.

Cristiani, Athos, to AMF Incorporated. System and device for cutting and reducing rod segments. 3,782,229, Cl. 83-37.000.

Crosby, David Winston, to Imperial Chemical Industries Limited. Treatment of sheet materials. 3,782,899, Cl. 8-149.200.

Crosfield Electronics Limited: *See—*
Gold, Daniel; and Clinton, Geoffrey David, 3,783,293.

Crumpacker, William H. Wind-responsive sprinkler regulator. 3,782,637, Cl. 239-232.000.

Cruse, William Marion. Remote lighting control system. 3,783,263, Cl. 240-3.000.

Csikor, Laszlo: *See—*
Holzl, Horst; Rosskopf, Max; and Csikor, Laszlo, 3,781,974.

CTC GmbH: *See—*
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Cummins Engine Company, Inc.: *See—*
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Cunningham, Francis V., to Joslyn Mfg. and Supply Co. Apparatus for assembling a cable coupling. 3,781,964, Cl. 29-203.0hm.

Curcio, Michael P. Miter box. 3,782,235, Cl. 83-762.000.

Curtis, George C.; and Spight, James S. Pool water temperature control. 3,781,925, Cl. 4-172.150.

Cusato, Anthony J., to Mann, Henry, Inc. Light wire pliers for orthodontists. 3,781,993, Cl. 32-66.000.

Cushman Electronics, Inc.: *See—*
Bradley, Donald A., 3,783,380.

Cutler-Hammer, Inc.: *See—*
Offutt, Warren B., 3,782,826.

Cutters Machine Company, Inc.: *See—*
Frederick, Cecil S.; and Smith, Hoyt L., 3,782,649.

Cyklop Gesellschaft Emil Hoffmann: *See—*
Wehr, Hubert, 3,783,079.

Czaplinski, Thomas V.; Bruno, Gerald A.; and Haney, Thomas A., to Squibb, E. R., & Sons, Inc. Sterile generator housing and support. 3,783,291, Cl. 250-434.000.

Dahle, Orvar, to Allmanna Svenska Elektriska Aktiebolaget. Magnetoelastic transducer for force measurement. 3,782,187, Cl. 73-141.00a.

Dai Nippon Printing Co., Ltd.: *See—*
Ohto, Michihiro; Noshiro, Atsumi; and Mayuzumi, Tetsuya, 3,782,940.

Daimler-Benz Aktiengesellschaft: *See—*
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Schiesterl, Gerhard; and Bibl, Josef, 3,783,207.

Dainippon Ink and Chemicals, Incorporated: *See—*
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Dal Molin, Guido A., to Co-Ordinated Industries, Inc. Welding gun cooling structure and electrode tip retainer. 3,783,233, Cl. 219-130.000.

D'Alonzo, Constance Anthony: *See—*
Lontz, John Frank; and D'Alonzo, Constance Anthony, 3,782,974.

Dalrymple, Donald D., to National Forge Company. Dynamic balancing apparatus. 3,782,203, Cl. 73-468.000.

Daly, Daniel G.; and Ritacco, Gerardo A., to Bendix Corporation, The. Method for sealing anodized beryllium components to improve dielectric and corrosion resistant properties. 3,782,997, Cl. 117-49.000.

Dandois, Charles L., to Allis-Chalmers Corporation. External material lifters for rotary kilns and the like. 3,782,891, Cl. 432-118.000.

Danfoss A/S: *See—*
Pedersen, Hans Christian; and Nielsen, Erik, 3,782,580.

Danielsen, Svend: *See—*
Eriksen, Bjorn Westphal; and Danielsen, Svend, 3,782,967.

Danilevich, July Iosifovich: *See—*
Sigal, Isaak Yakovlevich; Naidenov, Georgy Fedorovich; Gurevich, Nikolai Alexandrovich; Danilevich, July Iosifovich; Shiman, Andrei Matveevich; Shishkin, Viktor Fedorovich; and Goncharenki, Nikolai Ivanovich, 3,782,302.

Danko, Oliver L.: *See—*
Gallagher, Bernard J.; Shufflebarger, Earl D.; Simko, David M.; Medvick, Richard J.; Boylan, John R.; and Danko, Oliver L., 3,782,685.

Dann, Bert H., to International Video Corporation. FM pulse averaging demodulator. 3,783,398, Cl. 329-50.000.

Dappen, Glen M.: *See—*
Abbott, Thomas I.; Dappen, Glen M.; and Irani, Nayyir F., 3,782,936.

Darash, Raymond Nicholas, to Weatherland Company, The. Unbalanced poppet relief valve. 3,782,412, Cl. 137-514.000.

Darnall, John C., to Times Mirror Company, The. Method for generating information to control the scanning beam of a display device. 3,783,331, Cl. 315-18.000.

Darnall, John C., Jr., to Time Minow Company, The. Self-tensioning flexible printing plate. 3,782,281, Cl. 101-415.100.

Darnell, Eula K. Behavior modification point board. 3,782,009, Cl. 35-23.00r.

Daugirdas, Kristupas: *See—*
Lynn, Robert J.; Daugirdas, Kristupas; and Reddy, Redreddy Sukumar, 3,782,034.

Davies, John R.: *See—*
Solomon, William H.; Davies, John R.; and Eorward, Carrel M., 3,783,058.

Davies, Norman; and Wobrak, Robert E., to Westinghouse Electric Corporation. Metal-enclosed switchgear with interlock means. 3,783,208, Cl. 200-50.0aa.

Davies, Norman, to Westinghouse Electric Corporation. Circuit interrupter with improved overcenter spring operating mechanism. 3,783,214, Cl. 200-153.0sc.

Davis, Andrew W.: *See—*
Godson, Louis H.; Jacobs, William B.; and Davis, Andrew W., 3,783,109.

Davis, Charley W., Jr. Toilet lid or lid and seat closer. 3,781,924, Cl. 4-251.000.

Davis, Gilbert L. Pneumo-infufflator apparatus. 3,782,363, Cl. 128-2.00r.

Davis, Marvin A. Fishing rod holder. 3,782,613, Cl. 224-5.00e.

Dawson, Bruce Edgar: *See—*
Wolowodiuk, Walter; Anelli, John; and Dawson, Bruce Edgar, 3,782,455.

Day, Paul B. Plant telephone communication system. 3,783,195, Cl. 179-28.000.

Dayton Manufacturing Company: *See—*
Materese, Vincent, 3,782,550.

De Jong, Gerrit: *See—*
Burger, Jacobus J.; De Jong, Gerrit; and Den Boer, Gradus J. J., 3,782,528.

De Luca, Robert David; Keck, Donald Bruce; and Maurer, Robert Distler, to Corning Glass Works. Heat treating optical waveguides for OH ion removal. 3,782,914, Cl. 65-3.000.

De Staat Der Nederlanden, Ten Deze Vertegenwoordigd Door de Directeur-General der Posterijen, Telegrafie en Telefonie: *See—*
Van Dalen, Christiaan Johannes, 3,782,297.

Debeaux, Pierre. Compasses. 3,781,995, Cl. 33-27.00f.

DEC International Inc.: *See—*
Peters, Norman J., 3,783,166.

DeCboer, Charles D., to Eastman Kodak Company. Photosensitive element comprising polymers with cyclopropenyl groups and process. 3,782,938, Cl. 96-35.100.

Decker, Hanns; Stockmann, Helmut; and Hurtmanns, Heinz, to Klockner-Humboldt-Deutz Aktiengesellschaft. Gyratory crusher with hydraulic adjustment of the crusher gap. 3,782,647, Cl. 241-215.000.

Dederra, Helmut: *See—*
Butter, Karl; Kaufmann, Michael; and Dederra, Helmut, 3,782,118.

Deering Milliken Research Corporation: *See—*
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DeFago, Raymond; Angliker, Hans-Joerg; Holzrichter, Herbert; Kneubuehler, Werner; and Peter, Richard, to Ciba-Geigy AG. Sublimation transferring hydroxy or amino-dialkylamino-dicyanostyryl dye and diisocyanate fixation of dyed textile and transfer sheets terefor. 3,782,896, Cl. 8-2.500.

Defence of Great Britain, Secretary of State for: *See—*
Gibb, Robert David; Smith, Donald Rowand; Wickenden, Geoffrey Charles; Galton, Graham Norman; and Shepherd, Dennis Robert, 3,782,284.

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Deknatel, Inc.: *See—*
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DeLancey, Warren H.; and Weisman, Donald, to Flood Control Valve Company. Sumpless pump. 3,782,860, Cl. 417-41.000.

Demag Aktiengesellschaft: *See—*
Walter, Gustav, 3,782,446.

Demco Corporation: *See—*
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Denda, Seiichi: *See—*
Tarui, Yasuo; Denda, Seiichi; Baba, Harutsune; and Komimiya, Yasuo, 3,783,228.

Deniega, Jose Castillo; and Tellerman, Edward M., to Wesco Industries Corporation, mesne. Filament feeding and storage device. 3,782,661, Cl. 242-47.120.

Denki Onkyo Company, Ltd.: *See—*
Nishiba, Seishiro; Kuroyanagi, Masasi; and Ogawa, Koichi, 3,783,430.

Denver Plastics, Inc.: *See—*
Wanderer, Herbert J., 3,782,611.

Depenthal, Fritz; and Swartz, Karl M. Automatic feeding device. 3,782,332, Cl. 119-51.130.

Depmeyer, Lothar, to Continental Gummi-Werke Aktiengesellschaft. Pneumatic vehicle tire. 3,782,440, Cl. 152-330.000.

Derouineau, Rene. Resuscitation apparatus for simultaneous cardiac massage and artificial respiration. 3,782,371, Cl. 128-28.000.

Despatch Industries, Inc.: *See—*
Johnson, David E.; and Polsfoss, Terrance E., 3,782,892.

Desperier, Jean-Michel; and Sermanet, Gerard, to l'Air Liquide, Societe Anonyme pour l'Etude et l'Exploitation des Procedes Georges Claude. Low temperature storage vessel. 3,782,133, Cl. 62-381.000.

Deters, Elmer M., to Red Jacket Manufacturing Company. Control apparatus for a water supply system. 3,782,858, Cl. 417-26.000.

Deutsche Babcock & Wilcox Aktiengesellschaft: *See*—
Schaloske, Peter; and Maurer, Erich, 3,782,316.

Deutsche Edelstahlwerke GmbH: *See*—
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Diamond Power Speciality Corporation: *See*—
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Didier-Werke A.G.: *See*—
Klein, Walter, 3,783,171.

Dietert, Harry W., to Dietert, Harry W., Co. Structure for ultrasonic screening. 3,782,547, Cl. 209-268.000.

Dietert, Harry W., Co.: *See*—
Dietert, Harry W., 3,782,547.

Dietz, George C.; and Gross, William G., to Armstrong Cork Company. Electric curing oven. 3,783,238, Cl. 219-395.000.

Digi-Data Corporation: *See*—
Long, Thomas R.; Miller, Warren H., Jr.; and Campbell, Scott V., 3,782,716.

Dillard, Paul A.; and Williamson, Clyde E., to TRW Inc. Self-erecting and rigidizing deployable panel and panel assembly. 3,783,029, Cl. 136-89.000.

Diman, William C.: *See*—
Westeren, Herbert W.; Vanderford, Wallace S., Jr.; Diman, William C.; and Scotto, Vincent, 3,782,705.

Dimension Weld International Corporation, The, mesne: *See*—
Kuroda, Minoru, 3,783,156.

Dion, Donald J.: *See*—
White, David J.; and Dion, Donald J., 3,782,300.

Dishal, Milton; and Baran, Henri, to International Telephone and Telegraph Corporation. Selection and processing system for signals, including frequency discriminator. 3,783,397, Cl. 329-110.000.

Dishington, Roland H.: *See*—
Hook, William R.; Hilberg, Ronald P.; and Dishington, Roland H., 3,783,403.

Disinger, Donald E., to GTE Sylvania Incorporated. Multiple carrier frequency modulated signal generating apparatus. 3,783,388, Cl. 325-363.000.

Ditlinger, Richard J., to Bendix Corporation, The. Tension-torsion tie bar. 3,782,220, Cl. 74-579.00r.

Dittbenner, Clyde A. Shipping container. 3,782,619, Cl. 229-14.00r.

DoAll Company: *See*—
Anderson, William T.; and Wallace, Robert A., Jr., 3,783,253.

Dobson Park Industries Limited: *See*—
Martin, Dennis Douglas, 3,782,484.

Doe, Ewart H., to Twyford Moors (Aircraft & Engineering) Limited. Bar holder arrangement for an automatic machine tool. 3,782,593, Cl. 221-248.000.

Doerrfeld, Robert E., to Hansen, A. L., Manufacturing Company. Flush type door latch. 3,782,141, Cl. 70-146.000.

Doherty, John J., to Armstrong Cork Company. Method for applying adhesive to the edges of a slit tube. 3,782,994, Cl. 117-4.000.

Dolco Packaging Corporation: *See*—
Fries, Harry L., 3,782,591.

Dollbaum, Wilhelm: *See*—
Herzberg, Claus; and Dollbaum, Wilhelm, 3,782,968.

Dolotov, Jury Ivanovich: *See*—
Sablev, Leonid Pavlovich; Dolotov, Jury Ivanovich; Getman, Leonid Ivanovich; Gorbunov, Valentin Nikolaevich; Goldiner, Evgeny Georgievich; Kirshfeld, Karl Teodorovich; and Usov, Vladislav Vasilievich, 3,783,231.

Domkraft AB Nike: *See*—
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Donars, David W. Athletic protector. 3,782,375, Cl. 128-158.000.

Donath, Ernest E., to United States of America, Interior. Two-stage gasification of coal with forced reactant mixing and steam treatment of recycled char. 3,782,913, Cl. 48-202.000.

Doniguian, Thaddeus M., to Becton, Dickinson and Company. Particle counter having removable aperture slide. 3,783,376, Cl. 324-716.00p.

Donnell, Emerson B., Jr., to Egan Machinery Company. Web winder control. 3,782,650, Cl. 242-56.800.

Donnelly, Frank R., to Spin Company. Pipelining apparatus. 3,782,636, Cl. 239-216.000.

Donohue, Allen C.; Grote, Albert O.; and Tielborg, Bernard P., to Mini-Motor Speedways, Inc. Vehicle-to-track linkage. 3,782,293, Cl. 104-245.000.

Doran, John T.; and Maddock, John C. Automated handling system for container held material. 3,782,565, Cl. 214-16.40r.

Dore, Jacky, to Sandoz Ltd. Dyeing polyamide fibers with chromium-donating monoazo dyestuffs. 3,782,897, Cl. 8-43.000.

D'Orio, Salvatore A.: *See*—
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Dosch, Peter; and Dorsch, Dieter, to Heberlein & Co., AG. Process and circuit for the approximately continuous control by means of an electric on-off control. 3,783,368, Cl. 321-18.000.

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Bures, Ladislav; Rajnoha, Jaroslav; Chrtek, Milan; Cerny, Miroslav; Doudlebsky, Ctibor; and Hybl, Josef, 3,782,095.

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Dowdell, Joshua R.; and Sanderson, Paul H., Jr., to Demco Corporation. Louver assembly having improved weatherproofing and air flow characteristics. 3,782,050, Cl. 52-473.000.

Downey, Roger B., to Polaroid Corporation. Motion picture processing and projection system employing multi-purpose cassette. 3,782,262, Cl. 95-89.00r.

Dragerwerk Aktiengesellschaft: *See*—
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Drake, Daniel D.; Lloyd, Evan M.; and Norris, Richard F., to Singer Company, The. Long period integrator. 3,783,392, Cl. 328-127.000.

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Dresner, Joseph: *See*—
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Drone, Gary A., to Allis-Chalmers Corporation. Hydraulic control system with locking valve to prevent accidental or unauthorized lowering of a tractor implement. 3,782,249, Cl. 91-411.00r.

Drummond, Courtney L., Jr. Electrical heating system for body and foot warmth. 3,783,240, Cl. 219-486.000.

Drury, Raymond L., Jr.: *See*—
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Dulude, Donald O.; and Winbigler, Paul H., to Kuhlman Corporation. Spring assembly and methods and machines for the manufacture thereof. 3,782,708, Cl. 267-91.000.

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Dunand, Jean Jacques: *See*—
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Dunkley, Willis R. Car wash. 3,781,938, Cl. 15-21.00e.

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Duvall, Leroy F.; and Stone, Charles D., to Quaker Oats Company, The. Method of vitamin coating cereal products. 3,782,963, Cl. 426-303.000.

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Egli, Hans; Burdette, Fredrick E.; and Nancarrow, James H., to Garrett Corporation, The. Energy transfer machine. 3,782,850, Cl. 415-53.00t.
Eichelberger, Edward Baxter, to International Business Machines Corporation. Level sensitive logic system. 3,783,254, Cl. 235-152.000.
Eichholz, Arthur H., to Central Quality Industries, Inc. Carrying handle assembly for cartons. 3,782,620, Cl. 229-52.0am.
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Ellingsen, Raymond L., to Brunswick Corporation. Mounting arrangement for an outboard motor. 3,782,321, Cl. 115-17.000.
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Enjolras, Christian; Gautier, Pierre; and Billy, Emile, to Etablissements J. J. Carnaud & Forges de Basse-Indre. Method of securing a pull ring to an easy opening can end. 3,781,972, Cl. 29-509.000.
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Eriksen, Bjorn Westphal; and Danielsen, Svend, to Aktieselskabet Donak Gaerings-Industri. Preparation of an eatable yeast product. 3,782,967, Cl. 426-62.000.
Erlandson, Howard W., to FMC Corporation. Machine for overwrapping multiple containers. 3,782,070, Cl. 53-184.000.
Ernst, Max. Ball game. 3,782,729, Cl. 273-138.00a.
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Felker, Theodore S. Metal drawing die. 3,782,164, Cl. 72-274.000.

Feller, Fritz, to Defense, Secretary of State for. Rotary piston internal combustion engine. 3,782,337, Cl. 123-8.050.

Felmann, Ted S.; Carlile, Hollis B., Jr.; and Blankenhorn, Charles F., to Shell Oil Company. Dispersing cellular-micro-organism with chelating aqueous alkaline surfactant systems. 3,782,471, Cl. 166-307.000.

Felser, Joseph, Jr. Bearing extraction device. 3,781,963, Cl. 29-201.000.

Ferber, Wilhelm; Kahnt, Johannes; and Jost, Gunter, to U.S. Philips Corporation. Litz wire for high-frequency coils wound with water-repellent textile fibres. 3,783,179, Cl. 174-121.00a.

Ferdriksson, Carl Ewert, to Domkraft AB Nike. Method and a tool for mounting and dismounting spring shock absorbing means. 3,781,970, Cl. 29-446.000.

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Fisher, Julian V., to Illinois Tool Works, Inc. Light socket device. 3,783,435, Cl. 339-92.00m.

Fisher, Raymond F. Safety sole for sport shoe. 3,782,011, Cl. 36-59.00r.

Fisher, Robert C. Buckle assembly machine and method. 3,781,967, Cl. 29-430.000.

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Forkner, John H. Method of making a bakery product having an expanded filling. 3,782,966, Cl. 426-275.000.

Forster, Daniel Emile; and Perrault, Jean, to International Standard Electric Corporation. Low disparity bipolar PCM system. 3,783,383, Cl. 325-38.00a.

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Frister, Manfred, to Bosch, Robert, G.m.b.H. Fan blade assembly. 3,782,853, Cl. 416-132.000.

Frock, Brian G., to National Cash Register Company, The. Sintered cupic oxide masses. 3,783,155, Cl. 265-65.000.

Froehlich, Alfred; Oetiker, Alfred; and Schaller, Heinrich, to Ciba-Geigy AG. Photographic material containing nitro compounds for the silver dyestuff bleaching process. 3,782,948, Cl. 96-73.000.

Froment, Jean C.; and Monrolin, Jean L., to International Business Machines Corporation. N Path filter having two input and n output paths. 3,783,413, Cl. 332-23.000.

Frystak, Richard: *See—*
Costanza, Carl; Weber, Walter W.; Setlejewski, Frank W.; and Frystak, Richard, 3,782,816.

Fuchs, Francis Joseph, Jr., to Western Electric Company, Incorporated. Variable orifice die and control therefor. 3,782,154, Cl. 72-12.000.

Fuchs, Julius J., to Du Pont de Nemours, E. I., and Company. Process for the preparation of symmetrical azo compounds. 3,783,148, Cl. 260-192.000.

Fuji Photo Film Co., Ltd.: *See—*
Arai, Atsuaki; Ohkubo, Kinji; Tajima, Tatsuya; Tanaka, Mitsugu; and Tutiya, Yosinori, 3,782,946.
Hayakawa, Yoshihide; and Satomura, Masato, 3,782,943.
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Ohkubo, Kinji; Masuda, Takao; Shiba, Keisuke; Hinata, Masanao; Sato, Akira; and Ogawa, Akira, 3,782,957.
Shimamura, Isao; Iijima, Yoo; Okutsu, Eiichi; Iwano, Haruhiko; Shishido, Tadao; and Ohi, Reiichi, 3,782,945.
Takimoto, Hisashi; Minoda, Minoru; and Takagi, Akira, 3,782,995.

Fujii, Motoharu; Yamaguchi, Isao; Miyamoto, Kimio; Yamaguchi, Masaru; and Sano, Yozo, to Canon Kabushiki Kaisha. Indicia identification system. 3,783,290, Cl. 250-456.000.

Fujimori, Ryo; and Kamachi, Shinichi, to Olympus Optical Company Limited. Method of correcting photoelectric microscopes. 3,782,834, Cl. 356-167.000.

Fujitsu Fanuc Limited: *See—*
Yamamura, Sakae; and Inaba, Seiuemon, 3,783,319.

Fujitsu Limited: *See—*
Maeda, Takashi; and Shirouchi, Yasunari, 3,781,984.
Yamamura, Sakae; and Inaba, Seiuemon, 3,783,319.

Fulford, Richard S., to Cities Service Oil Company. Formation and wellbore scale prevention. 3,782,469, Cl. 166-279.000.

Fuller Company: *See—*
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Fulmer Research Institute, Limited: *See—*
Brook, Greville B.; and Iles, Roger F., 3,783,037.

Fulton, George L.; Gager, Robert M.; and Atlee, Zed J., to Picker Corporation. Anode current stabilization circuit X-ray tube having stabilizer electrode. 3,783,287, Cl. 250-404.000.

Funayama, Charles T. Combination spinning and fly casting reel. 3,782,652, Cl. 242-84.10r.

Furstlich Hohenzollernsche Hullenverwaltung: *See—*
Harle, Hermann; and Eisenmann, Siegfried, 3,782,040.

Futamura, Shoji, to Technology Precision Electrical Discharge Works, Institute of. Optical aligning device for positioning the electrode of a spark discharge machining apparatus. 3,782,830, Cl. 356-138.000.

Fuzzell, Joe E., to Caterpillar Tractor Company. Electronic component positioner for loader vehicles and the like. 3,782,248, Cl. 91-358.00a.

Gachot, Jean; and Lekarski, Simeon. Distributor for fluid under pressure. 3,782,415, Cl. 137-596.180.

Gaebele, Rolf, to GTE Sylvania Incorporated. Aperture correction circuit for low light level television camera. 3,783,190, Cl. 178-7.200.

GAF Corporation: *See—*
Komor, Joseph A., 3,782,983.
Yao, Shi-Kuang, 3,782,935.

Gager, Robert M.: *See—*
Fulton, George L.; Gager, Robert M.; and Atlee, Zed J., 3,783,287.

Galen, Allen. Rotatable display device. 3,782,014, Cl. 40-64.00r.

Gallacher, Lawrence Vincent, to American Cyanamid Company. Fibrous polyethylene materials. 3,783,093, Cl. 161-170.000.

Gallagher, Bernard J.; Shufflebarger, Earl D.; Simko, David M.; Medvick, Richard J.; Boylan, John R.; and Danko, Oliver L., to Nupio Company. Bellows sealed butterfly valve. 3,782,685, Cl. 251-306.000.

Gallagher, Edward F., to Gallagher-Kaiser Corporation. Air washer. 3,782,080, Cl. 55-226.000.

Gallagher-Kaiser Corporation: *See—*
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Gallanis, George P.; and Spohr, Albert R., to Sunbeam Corporation. Electric appliance. 3,783,364, Cl. 320-2.000.

Galle, Edward L., to Pillsbury Company, The. Process for producing milled stabilized wheat gem. 3,783,164, Cl. 426-312.000.

Galloup, Clifford L.: *See—*
Baker, William J.; Galloup, Clifford L.; and Bos, John R., 3,781,932.

Galt Equipment Ltd.: *See—*
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Galton, Graham Norman: *See—*
Gibb, Robert David; Smith, Donald Rowand; Wickenden, Geoffrey Charles; Galton, Graham Norman; and Shepherd, Dennis Robert, 3,782,284.

Garbick, John R.; and Miller, Jerald E., to Armstrong Cork Company. Method of cutting a joint in a ceiling tile. 3,782,433, Cl. 144-323.000.

Gardenier, Hugh Emory, to Aronetics, Inc. Process and apparatus for cleansing and pumping contaminated industrial gases using a nozzle having a variable throat area. 3,782,074, Cl. 55-19.000.

Gardner, Clarence G.: *See—*
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Gardner, Thomas W.: *See—*
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Gardner-Denver Company: *See—*
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Garrett Corporation, The: *See—*
Egli, Hans; Burdette, Fredrick E.; and Nancarrow, James H., 3,782,850.

Garwood, James R., to National Oats Company, Inc. Pocket for use on a loader, tractor or the like. 3,782,573, Cl. 214-768.000.

Garzotto, Felice, to Rimar S.p.A. Device for shifting products to be dried on a perforated drying drum. 3,782,003, Cl. 34-110.000.

Gasser, Hermann; and Plezer, Imre, to Luwa AG. Apparatus for withdrawing rapidly moving yarn material. 3,782,617, Cl. 226-97.000.

Gates Rubber Company, The: *See—*
Kerst, Al F.; and Douros, John D., Jr., 3,783,160.

Gautier, Joel P., to Societe Anonyme. Public works machine. 3,782,572, Cl. 214-762.000.

Gautier, Pierre: *See—*
Enjolras, Christian; Gautier, Pierre; and Billy, Emile, 3,781,972.

Gay, Michael J., to Motorola, Inc. Differential current amplifier. 3,783,400, Cl. 330-30.00d.

Gebhardt, John C., to Cadcom, Incorporated. Light weight, high strength concrete and method for manufacturing the same. 3,782,985, Cl. 106-97.000.

Gebr. Eickhoff, Maschinenfabrik und Eisengiesserei m.b.H.: *See—*
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Van Vessem, Cornelis J.; and Geerdes, Dirk J. F., 3,782,173.

Gehrig, Reinhold: *See—*
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Gelfand, Leonard, to Erico Products, Inc. Cable and like splicing apparatus. 3,782,677, Cl. 249-97.000.

Geltenpoth, Ulrich: *See—*
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Gema AG Apparatebau: *See—*
Braun, Franz; Ribnitz, Peter; and Huber, Willi, 3,782,632.

Gempel, Robert Francis: *See—*
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Adams, Norbert; and Baum, Edward A., 3,783,218.
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General Home Products Corporation: *See—*
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General Mills, Inc.: *See—*
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General Motors Corporation: *See—*
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General Signal Corporation: *See—*
Philibert, Robert A.; Polimine, Robert; and Parkins, Eversly V., 3,783,178.

Gentscheff, Stojan. Device for slitting the sidewall of a wrapping of a roll of coins. 3,781,987, Cl. 30-2.000.

Geomet, Incorporated: *See—*
Moyer, Rudolph H.; and Sibbett, Donaid J., 3,783,105.

Gerber, Arthur H., to Horizons Incorporated. Process for the preparation of heterocyclic polymers from aromatic tetramines and derivatives of polycarboxylic acids. 3,783,137, Cl. 260-47.0cp.

Gerek, Gene: *See—*
Hahn, Ernest A.; Hartzell, Rowland S.; and Gerek, Gene, 3,783,006.

Gergovich, Frank A. Singing sound producer for bicycles. 3,782,030, Cl. 46-175.00r.

Gerlach, Charles R.; and Schroeder, Edgar C., to Rineer Hydraulics, Inc., mesne. Fluid power converter. 3,782,867, Cl. 418-82.000.

Germer, John A. Coupling apparatus for containers. 3,781,947, Cl. 24-81.00e.

Gesipa, Gesellschaft fur Internationale: *See—*
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Ohlschlager, Hans; Ghys, Theofiel Hubert; Verhille, Karel Eugeen; and Kampfer, Helmut, 3,782,934.

Giambazi, James D. Golf club with eccentric grip therefor. 3,782,725, Cl. 273-81.003.

Gianardi, Acostino, to Olivetti, Ing., C., & C., S.p.A. Hinge for the articulated connection of partitioning panels, furniture and the like for offices. 3,781,944, Cl. 16-187.000.

Giatti, Filippo, to AMF Incorporated. Storing and feeding device for cigarettes. 3,782,523, Cl. 198-22.00r.

Gibb, Robert David; Smith, Donald Rowand; Wickenden, Geoffrey Charles; Galton, Graham Norman; and Shepherd, Dennis Robert, to Hawker Siddeley Aviation Limited and Defence of Great Britain, Secretary of State for. Aircrew escape systems. 3,782,284, Cl. 102-7.00r.

Gibson, John G.; and Holland, Ronald, to British Railways. Electric cells and batteries. 3,783,024, Cl. 136-6.00a.

Giebler, Fritz, to Siemens Aktiengesellschaft. Arrangement for the connecting of transmission devices to a program controlled electronic data exchange system. 3,783,183, Cl. 178-3.000.

Gilbert, Lloyd H. Bottle valve. 3,782,610, Cl. 222-484.000.

Gilchrist, Robert F.: *See—*
Lee, Dennis D.; and Gilchrist, Robert F., 3,782,683.

Gildner, Kenneth J., to Ray, Milton, Company. Pulse dampener. 3,782,709, Cl. 267-114.000.

Girling Limited: *See—*
Rath, Heinrich Bernhard, 3,782,510.

GKN Sankey Limited: *See—*
Clark, George William Joseph; Golder, Gerald William; and Hart, Frederick Leslie, 3,782,036.

Glaesener, Ernest; Schleimer, Francois; Wagner, Fernand; Goedert, Ferdinand; Bauer, Alex; and Mousel, Robert, to Arbed Acieries Reunies de Burbach. Production of steel with a controlled phosphorus content. 3,782,921, Cl. 75-51.000.

Glass, Marvin, & Associates: *See—*
Glass, Marvin I.; and Schoenfield, Palmer, 3,782,032.

Glass, Marvin I.; and Schoenfield, Palmer, to Glass, Marvin, & Associates. Combination preschool toy vehicle and launching station. 3,782,032, Cl. 46-202.000.

Gleisen, Robert K. Improved scaffold. 3,782,498, Cl. 182-119.000.

Glickman, Richard B.: *See—*
Hamilton, Fenton D.; Glickman, Richard B.; Hartz, George R.; and Tawil, Joseph N., 3,783,264.

Globe-Union, Inc.: *See—*
Gonyo, Newell Joseph; and Lower, Kenneth Eugene, 3,782,144.

Glukhov, Ivan Ivanovich: *See—*
Levashov, Gennady Vasilievich; Kalashnikov, Sergei Nikiforovich; Glukhov, Ivan Ivanovich; and Shemyrev, Mikhail Pavlovich, 3,782,244.

Gmeiner, Gunter; Grabner, Christian; Sigmund, Gerhard; and Binder, Rudolf. Daimler-Benz Aktiengesellschaft Adjustable and tiltable rearview mirror especially for passenger motor vehicles. 3,782,218, Cl. 74-491.000.

Gobel, Klaus. Bearing for support of roofing tiles. 3,782,060, Cl. 52-126.000.

Gobetz, Giles Edward. Multi-purpose cart. 3,782,752, Cl. 280-47.190.

Godson, Louis H.; Jacobs, William B.; and Davis, Andrew W., to United States of America, Army, mesne. Air pollution monitoring method. 3,783,109, Cl. 204-1.00t.

Goedert, Ferdinand: *See—*
Glaesener, Ernest; Schleimer, Francois; Wagner, Fernand; Goedert, Ferdinand; Bauer, Alex; and Mousel, Robert, 3,782,921.

Goedlke, Edward R.: *See—*
Brockmeyer, Bernard J.; Goedlke, Edward R.; Schweig, Melvern A.; and Tracy, William R., 3,782,563.

Goglio, Luigi. Apparatus for securing valves on flexible bags and flat sheets convertable into bags. 3,783,080, Cl. 156-514.000.

Golbeck, Bernard J.: *See—*
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Gold, Daniel; and Clinton, Geoffrey David, to Crosfield Electronics Limited. Register control systems. 3,783,293, Cl. 250-548.000.

Golda, Eugene; and Bown, Delos L., to Polychrome Corporation. Light-sensitive composition of a tetra (epoxy-propoxyphenyl)-lower alkane and an initiator. 3,782,952, Cl. 96-93.000.

Golder, Gerald William: *See—*
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Goldfarb, Adolph E.; and Dekan, Howard L., to Goldfarb, Adolph E. Doll dress up set. 3,782,027, Cl. 46-22.000.

Goldiner, Evgeny Georgievich: *See—*
Sablev, Leonid Pavlovich; Dolotov, Jury Ivanovich; Getman, Leonid Ivanovich; Gorbunov, Valentin Nikolaevich; Goldiner, Evgeny Georgievich; Kirshfeld, Karl Teodorovich; and Usov, Vladislav Vasilievich, 3,783,231.

Goldman, Gerald M. Electronic anit-theft locking system. 3,782,148, Cl. 70-278.000.

Goldsworthy Engineering, Inc.: *See—*
Karlson, Harald E., 3,782,096.

Goldsworthy, William B.; and Hardesty, Ethridge E., to Goldworthy Engineering Inc. Method and apparatus for making filament reinforced storage vessels. 3,783,060, Cl. 156-69.000.

Goldworthy Engineering Inc.: *See—*
Goldsworthy, William B.; and Hardesty, Ethridge E., 3,783,060.

Golubev, Jury Vasielevich: *See—*
Kheifeis, Georgy Naumovich; Plyatskovsky, Oskar Alexandrovich; Yankovsky, Vladimir Mikhailovich; Akhmedov, Baba Abbas Ogly; Lange, Zelman Iosifovich; Golubev, Jury Vasielevich; Solomadina, Elizaveta Andreevna; Statnikov, Vladimir Mikhailovich; Ibragimov, Irafil Naftali Ogly; Guliev, Tagi Rza Ogly; and Porokhovnikov, Jury Zinovievich, 3,782,160.

Goncharenki, Nikolai Ivanovich: *See—*
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Gonyo, Newell Joseph; and Lower, Kenneth Eugene, to Globe-Union, Inc. Security lid for plating container. 3,782,144, Cl. 70-164.000.

Goodrich, B. F., Company, The: *See—*
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Eden, Jamal S., 3,783,153.

Goodyear Tire and Rubber Company, The: *See—*
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Goorhuis, Hendrik, to Sandoz Ltd. Electrostatic dyeing with microcapsules containing dyes in liquids of high dielectric constant. 3,782,895, Cl. 8-2.000.

Gorbunov, Valentin Nikolaevich: *See—*
Sablev, Leonid Pavlovich; Dolotov, Jury Ivanovich; Getman, Leonid Ivanovich; Gorbunov, Valentin Nikolaevich; Goldiner, Evgeny Georgievich; Kirshfeld, Karl Teodorovich; and Usov, Vladislav Vasilievich, 3,783,231.

Gordon Johnson-Stephens Limited: *See—*
Taylor, John, 3,781,945.

Gordon, Samuel. Shaft lock arrangement. 3,782,512, Cl. 188-134.000.

Gore, William George; and Parker, Roy Percival, to National Research Development Corporation. Cathode ray tube display systems. 3,783,334, Cl. 315-18.000.

Goss, Lorane C., Jr., to Capital Products Corporation. Corner angle for windows. 3,782,054, Cl. 52-758.00h.

Gothberg, Yngve Roland, to Kommanditbolaget United Stirling (Sweden) AB & Co. Stirling cycle engine with power control by charge of working gas pressure. 3,782,119, Cl. 60-521.000.

Goto, Kenjiro, to Mansei Kogyo Kabushiki Kaisha. Gas lighter. 3,782,882, Cl. 431-150.000.

Gourley, Charles A.: *See—*
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Grabow, Fritz, to Daimler-Benz Aktiengesellschaft. Transmission especially for motor vehicles. 3,782,225, Cl. 74-720.000.

Grace, W. R., & Co.: *See—*
Larsen, Donald W., 3,783,152.
Wessells, Forrest A.; and Conrey, John P., 3,782,327.

Graff, James C.; and Rhoades, Robert M., to General Electric Company. Lamp and socket for decorative string set. 3,783,437, Cl. 339-144.00r.

Graham, Granville Y. Collar identification tag. 3,782,017, Cl. 40-303.000.

Graham-White Manufacturing Company: *See—*
Taylor, Thomas D.; and Bredlow, Harvey F. (said Taylor assor. to), 3,783,345.

Graham-White Sales Corporation: *See—*
Taylor, Thomas D.; and Bredlow, Harvey F. (said Bredlow assor. to), 3,783,345.

Grams, Ralph R. Biological fluid sampling and testing apparatus. 3,782,197, Cl. 73-421.00r.

Granger, Derril D.: *See—*
Stephens, Leonard J.; Granger, Derril D.; McCullagh, John S.; and Hagar, Donald K., 3,782,684.

Grant, Philippe G. Electric wall plug. 3,783,438, Cl. 339-196.00r.

Gray Tool Company: *See—*
Slack, John, 3,782,458.

Green Hydraulics, Inc.: *See—*
Zahid, Abduz, 3,782,418.

Greenblatt, Louis W. Rechargeable battery pack for portably camera. 3,782,814, Cl. 352-242.000.

Gregg, David Paul. Scanning mechanism for film developer, and the like. 3,783,266, Cl. 240-10.100.

Gregor, Lawrence V.; and Maissel, Leon L., to International Business Machines Corporation. Method for passivating semiconductor material and field effect transistor formed thereby. 3,783,119, Cl. 204-192.000.

Gries, Robert Joseph, to RCA Corporation. Instant-on circuit for a television receiver offering independent filament voltage control. 3,783,335, Cl. 315-30.000.

Griffing, Walter. Ceiling mounting arrangement. 3,782,065, Cl. 52-39.000.

Griffiths, David K., to United States Steel Corporation. Method of preheating a tundish. 3,782,596, Cl. 222-1.000.

Grisar, Johann Martin; and Blohm, Thomas R., to Richardson-Merrell Inc. Hypoglycemic compositions containing benzhydryl- lactamimide derivatives. 3,783,162, Cl. 424-267.000.

Groff, Edwin I., to Reading Pretzel Machinery Co. Extrusion machine for pretzels and the like. 3,782,876, Cl. 425-232.000.

Gros-Ite Industries, Inc.: *See—*
Everett, George, 3,782,329.

Gross, Rudolph Leonard. Decking structure with guard rail support. 3,782,057, Cl. 52-27.000.

Gross, William G.: *See*—
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Grossmann, Hans-Hermann; Burg, Karlheinz; and Wolters, Ernst, to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning. Thermoplastic molding compositions on the basis of polyoxymethylenes. 3,783,145, Cl. 260-37.00a.

Grote, Albert O.: *See*—
Donohue, Allen C.; Grote, Albert O.; and Tielborg, Bernard P., 3,782,293.

Groves, Richard N., Jr. Control assembly for jet boat. 3,782,320, Cl. 115-12.00r.

GTE Automatic Electric Laboratories, Inc.: *See*—
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Buedel, Charles K.; and Caputo, James P., 3,783,255.
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G.T.E. Laboratories, Inc.: *See*—
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GTE Sylvania, Inc.: *See*—
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Guerici, Carlo: *See*—
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Gulf Oil Corporation: *See*—
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Gulf Research & Development Company: *See*—
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Guliev, Tagi Rza Ogly: *See*—
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Gurtler, Charles A., to United States of America, National Aeronautics and Space Administration. Dual measurement ablation sensor. 3,782,181, Cl. 73-86.000.

Gusmer, Frederick E. Heat exchange with resilient liquid accumulator. 3,782,456, Cl. 165-164.000.

Gutleber, Frank S., to United States of America, Army. Median frequency generator. 3,783,389, Cl. 328-15.000.

Gwilliam, Ralph Derek, to English Clays Lovering Pochin & Company Limited. Pressures filters and filter elements therefor. 3,782,554, Cl. 210-350.000.

Gwin, Richard B.; Ballis, William L.; Churchheus, Claude W.; and Hutt, Bruce L., to Columbia Gas System Service Corporation. Welding torch oscillator and positioner. 3,783,222, Cl. 219-60.00a.

Gwin, Richard B.; Ballis, William L.; and Churchheus, Claude W., to Columbia Gas System Service Corporation. Welding torch oscillator. 3,783,223, Cl. 219-60.00a.

Gysin, Leonhard: *See*—
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Haas, Larry A.; and Khalafalla, Sanaa E., to United States of America, Interior. Decomposition of carbonyl sulfide (COS) in electric charge. 3,783,116, Cl. 204-164.000.

Hackbarth, Eugene R.; and Ward, Harry M., III, to Outboard Marine Corporation. Die castable centrifugal fan. 3,782,851, Cl. 415-213.000.

Hacker, Earl. Intermittent drive. 3,782,208, Cl. 74-112.000.

Hackforth & Co., Firma: *See*—
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Hafner, Michael P., to Field Emission Corporation. Marx surge pulser having stray capacitance which is high for input stages and low for output stages. 3,783,289, Cl. 250-417.000.

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Hahn, Ernest A.; Hartzell, Rowland S.; and Gerek, Gene, to PPG Industries, Inc. Coated container and method of coating. 3,783,006, Cl. 117-93.310.

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Houston, John M., to General Electric Company. X-ray image intensifier input phosphor screen and method manufacture thereof. 3,783,298, Cl. 250-483.000.
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Hughes, Thomas E.: *See—*
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Korber, Karl-Heinz; Steiert, Hermann; and Dehnert, Heinz, 3,782,188.

Huhta-Koivisto-Esko Ensio; and Saari, Risto Vaino Juhani. Method and apparatus for distilling freshwater from seawater. 3,783,108, Cl. 203-11.000.
Huizinga, Ebe. Transparent sheet. 3,782,331, Cl. 119-5.000.
Huller, Karl, Gesellschaft mit beschrankter Haftung: *See*—
Holzl, Horst; Rosskopf, Max; and Csikor, Laszlo, 3,781,974.
Hulmes, Harold, to Ferranti Limited. Semiconductor devices. 3,781,977, Cl. 29-584.000.
Humbert, John E.: *See*—
Leon, Henry A.; Connolly, James P.; Hitchman, Maurice J.; and Humbert, John E., 3,782,334.
Hungerford, Daniel Comstock, to Brunswick Corporation. Anchor fluke. 3,782,318, Cl. 114-207.000.
Hungerford, Gordon P., to Mobil Oil Corporation. Method of making a coated tape, and particularly smooth surface magnetic recording tape. 3,783,023, Cl. 117-237.000.
Hunt, Harold G. Destratification system and air diffuser unit for user therein. 3,782,701, Cl. 261-65.000.
Hunter Engineering Company: *See*—
Senften, David A., 3,782,831.
Hurford, Winslow Leroy, to RCA Corporation. Fade-to-black video signal processing apparatus. 3,783,188, Cl. 178-6.800.
Hurst, Alan R.; and Mirasol, Salustiano S., to Phillips Petroleum Company. Heat sealed, readily peelable or tearable structure suitable for closures, labels, packaging, etc. 3,783,089, Cl. 161-166.000.
Hurtmanns, Heinz: *See*—
Decker, Hanns; Stockmann, Helmut; and Hurtmanns, Heinz, 3,782,647.
Hutchison, Edward T., Jr., to Walcott-Taylor Company Incorporated. Microfiche or card index. 3,782,013, Cl. 40-124.200.
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Ichiyanage, Toshikazu, to Canon Kabushiki Kaisha. Constant speed controlling device for a direct current motor. 3,783,357, Cl. 318-138.000.
Igwe, Godwill M. Camera mount. 3,782,671, Cl. 248-183.000.
Iijima, Yoo: *See*—
Shimamura, Isao; Iijima, Yoo; Okutsu, Eiichi; Iwano, Haruhiko; Shishido, Tadao; and Ohi, Reiichi, 3,782,945.
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Inukai, Takashi; and Nakamura, Takao, to Chisso Corporation. Method for producing unsaturated carboxylic acid esters. 3,783,136, Cl. 260-410.90r.
Iprofil "Technolemn"-Industria Produselor Finite Din Lemn Timisoara: *See*—
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Irick, Stephen C., to United States of America, National Aeronautics and Space Administration. Ejectable underwater sound source recovery assembly. 3,783,443, Cl. 340-5.00r.
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Irving, John Anderson, to Findlay, Irvine Limited. Apparatus for providing an indication of the imminence of ice-formation. 3,782,130, Cl. 62-128.000.
Isaacs, Harold. Self-supporting nesting cart. 3,782,746, Cl. 280-33.99H.
Isaacson, Calvin M: *See*—
Newton, Emerson H.; Ketteringham, John M.; Sienczyk, John L.; and Isaacson, Calvin M, 3,783,113.
Isermann, Heinrich, to Meteor-Siegen Apparatebau Paul Schmeck GmbH. Photo printing machine. 3,782,817, Cl. 355-83.000.
Ishii, Masahito; and Ichiki, Minoru, to Mitsui Mining & Smelting Co., Ltd. Method of electrolytic treatment of waste water. 3,783,114, Cl. 204-149.000.
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Ito, Shoji; Okamoto, Mitsuhiro; and Hasegawa, Katsumi, to Toray Industries, Inc. Method for winding a plural number of yarns and an apparatus therefor. 3,782,648, Cl. 242-35.50r.
Iwano, Haruhiko: *See*—
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Jacobs, Gordon B., to General Electric Company. Apparatus for measuring vibration in a moving object. 3,782,176, Cl. 73-71.300.
Jacobs, Harold J. Variable camber cleaner. 3,781,937, Cl. 15-49.00r.
Jacobs, William B.: *See*—
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Jacquemiuns, Izaak Johannes, to Thomassen & Drijver-Verblifa N.V. Vacuum closure for a jar or container, especially a glass preserving jar. 3,782,576, Cl. 215-42.000.
Jafs, Daniel; Marttala, Tapani; Christiansen, Kai; and Hakulin, Bertel, to Ahlstrom, A. Osakeyhtio. Process for recovering turpentine and heat in connection with the evaporation of black lye. 3,783,095, Cl. 162-16.000.
Jakowski, Charles R.: *See*—
Brodie, Donald E.; Camorota, Mathew; and Jakowski, Charles R., 3,782,194.
James, Jake, Jr. Adjustable thrust mechanism for separating the bonds between annular components of pneumatic tire-wheel assemblies. 3,782,442, Cl. 157-1.260.

James, Robert G. Oil well pumping apparatus. 3,782,117, Cl. 60-372.000.
Jamosi, Francis L.: *See*—
Cook, Harry E.; and Jamosi, Francis L., 3,782,509.
Jannetty, Louis F. Piercing assembly. 3,782,231, Cl. 83-143.000.
Janome Sewing Machine Co., Ltd.: *See*—
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Kasuga, Noboru, 3,782,312.
Nakada, Tetsuo; and Oyama, Noboru, 3,782,276.
Jantzen, Johannes K.; and Moore, Robert L., to International Video Corporation. Self-threading magnetic tape transport and magazine. 3,783,200, Cl. 179-100.200.
Jawor, Tadeusz Eronislaw, to Molins Limited. Apparatus for measuring density and moisture. 3,783,373, Cl. 324-58.05a.
Jefferson Chemical Company, Inc.: *See*—
Speranza, George Phillip, 3,783,133.
Jehn, David H.: *See*—
Maier, Gary W.; and Jehn, David H., 3,782,976.
Jenkins, William A., to Monarch Marking Systems, Inc. Composite web of pressure sensitive labels. 3,783,083, Cl. 161-38.000.
Jensen, Donald F.; Lagergren, Richard E.; Lentz, Robert C.; Schaffer, Robert R.; and Reidenbach, John R., to International Business Machines Corporation. Pneumatic reading system for document cards. 3,783,243, Cl. 235-61.11j.
Jerpe, James H. Apparatus for chromatographic separations. 3,782,078, Cl. 55-197.000.
Johns-Manville Corporation: *See*—
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Johnson & Johnson: *See*—
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Johnson, Amos N. Pedicure prosthesis for the metatarsal arch of the foot. 3,782,390, Cl. 128-595.000.
Johnson, Benjamin A.: *See*—
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Johnson, Cecil J. Method and apparatus for reducing nitrogen oxide air pollution. 3,782,115, Cl. 60-274.000.
Johnson, David E.; and Polsfoss, Terrance E., to Despatch Industries, Inc. Ovens. 3,782,892, Cl. 432-132.000.
Johnson Electronics, Inc.: *See*—
Redwine, Clyde S., 3,783,418.
Johnson, John L., Jr., to Lee, Raymond, Organization, Inc., The. Anti-theft device for motor vehicle. 3,783,303, Cl. 307-10.0at.
Johnson, Lawrence A.: *See*—
Farnsworth, Le Moyne E.; and Johnson, Lawrence A., 3,782,325.
Johnson, Matthey & Co., Limited: *See*—
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Johnson Products, Inc.: *See*—
Erickson, Ronald R.; and Cornell, Richard D., 3,782,345.
Johnson, Robert J. Joint forming and sealing device. 3,782,846, Cl. 404-48.000.
Johnson, Robert T.: *See*—
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Johnson, Wayne F., to United States of America, Atomic Energy Commission. Automatic photomultiplier tube voltage controller. 3,783,300, Cl. 250-564.000.
Jones, Dennis G.; and McCreery, James F., to Kennametal, Inc. Cutting insert. 3,781,956, Cl. 29-95.00r.
Jones, Donnie Roland, to Bowles Fluidics Corporation. Self contained fluidic level sensor. 3,782,323, Cl. 116-118.00r.
Jones, James J., to Texas Instruments, Incorporated. Programmed oscillator circuit and fixed threshold variable duty cycle pulse generator. 3,782,783, Cl. 303-21.00p.
Jones, Kenneth W.; and Richie, Edward. Non-lethal projectile and launcher therefor. 3,782,286, Cl. 102-41.000.
Jones, Roger L. Safety paper carton opening blade holder. 3,781,988, Cl. 30-2.000.
Jones, Stanley W.: *See*—
Nye, William M.; and Jones, Stanley W., 3,783,199.
Joslyn, Carl R.; and Dyce, John W., to Bendix Corporation, The. Method of mounting electrical contacts within a connector. 3,781,986, Cl. 29-630.00d.
Joslyn Mfg. and Supply Co.: *See*—
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Jost, Gunter: *See*—
Ferber, Wilhelm; Kahnt, Johannes; and Jost, Gunter, 3,783,179.
Juergens, Alfred J., to Fleet Engineers, Incorporation. Mud flap assembly and bracket therefor. 3,782,757, Cl. 280-154.500.
Jung, Ernst: *See*—
Maisch, Hans; and Jung, Ernst, 3,781,923.
Jurny, Josef; and Sedlak, Vaclav, to Adamovske Strojirny, narodni podnik. Sensing mechanism for impression cylinders. 3,782,280, Cl. 101-232.000.
Justus, Edgar J., to Beloit Corporation. Hydrodynamically loaded web press with slipper bearing shoes. 3,783,097, Cl. 162-358.000.
K-N Enterprises, Inc.: *See*—
Naftulin, Henry; and Kirschner, Leon, 3,782,382.
Kabel- und Metallwerke Gutehoffnungshutte Aktiengesellschaft: *See*—
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Kaesgen, Juergen: *See*—
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Kahanek, Herbert; Bohmers, Karl-Heinz; Schiemann, Willi; and Beckmann, Gunter, to Chemische Werke Huls Aktiengesellschaft. Method and apparatus for keeping free the agitator shaft seals from polymeride in polymerization vessels with bottom drive. 3,782,739 Cl. 277-62.000.
Kahnt, Johannes: *See*—
Ferber, Wilhelm; Kahnt, Johannes; and Jost, Gunter, 3,783,179.
Kahwati, Ghassan N.; and Mercer, Allen C., to Eastman Kodak Company. Labelling machine with pneumatic monitor. 3,782,560, Cl. 214-1.0bs.
Kaiser Aluminum & Chemical Corporation: *See*—
Henrickson, Henry G., 3,782,763.
Kakiura, Hiroshi, to Fischer & Porter Company. Drift-compensated analog hold circuit. 3,783,393, Cl. 328-127.000.
Kalashnikov, Sergei Nikiforovich: *See*—
Levashov, Gennady Vasilievich; Kalashnikov, Sergei Nikiforovich; Glukhov, Ivan Ivanovich; and Shemyrev, Mikhail Pavlovich, 3,782,244.
Kallianos, Andrew G.: *See*—
Means, Richard E.; Kallianos, Andrew G.; and Tenney, Kinwood P., 3,782,391.
Kalman, Peter Gabor. Plural motor differential control mechanism. 3,783,355, Cl. 318-8.000.
Kamachi, Shinichi: *See*—
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Kamachi, Shinichi, to Olympus Optical Company Limited. Focus indicating devices. 3,783,270, Cl. 250-201.000.
Kamae, Tsutomu: *See*—
Ono, Kuniharu; Kamae, Tsutomu; Takahashi, Kinzo; and Miyatake, Masao, 3,783,344.
Kammerer, Heinz; and Moller, Heinz, to Bosch, Robert, G.m.b.H. Capacitive type ignition arrangement for internal combustion engines. 3,782,353, Cl. 123-148.00e.
Kamo, Hideo; Akado, Hajime; and Kato, Yasutosi, to Nippondenso Co., Ltd. Intake air temperature automatic adjusting device and air cleaner with such device for internal combustion engines. 3,782,349, Cl. 123-122.00d.
Kampfer, Helmut: *See*—
Ohlschlager, Hans; Ghys, Theofiel Hubert; Verhille, Karel Eugeen; and Kampfer, Helmut, 3,782,934.
Kanayama, Mitsutoshi; and Toda, Takako, to Canon Kabushiki Kaisha. Microfilm driving device for macriofiche camera. 3,782,819, Cl. 355-54.000.
Kanazawa, Yasunori; and Eto, Yoshizumi, to Hitachi, Ltd. Holography using multiple diffused object illumination beams. 3,782,804, Cl. 350-3.500.
Kanda, Masami. Contact lens polishing system. 3,782,045, Cl. 51-124.00l.
Kanda, Masao, to Fuji Photo Film Co., Ltd. Web moistening device. 3,782,330, Cl. 118-325.000.
Kaneko, Toshiro: *See*—
Miura, Tatuo; and Kaneko, Toshiro, 3,781,981.
Kantorski, Joseph W.; Smith, Donald A.; LaMarre, David A.; Hansen, Donald H.; and Thorburn, Milton R., to American Optical Corporation. Laser microprobe. 3,782,823, Cl. 356-85.000.
Kantos Seiki Company, Ltd.: *See*—
Karube, Soichi; Hamada, Yoshio; and Suganuma, Yoshiyasu, 3,783,440.
Kao Soap Co., Ltd.: *See*—
Tomita, Tsutomu; and Mizukoshi, Masahiko, 3,782,970.
Kapsambelis, Christos Basil, to Computer Identics Corporation. Gauged pulse width determining circuit. 3,783,244, Cl. 235-61.11e.
Kar Industries Incorporated: *See*—
Hardison, Artson P.; and Hieber, E. Ellsworth, 3,782,400.
Karg, Dr., GmbH: *See*—
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Karg, Roland, to Karg, Dr., GmbH. Apparatus for dissolving an admixing components having a highly different specific gravity in liquid to highly viscous media. 3,782,697, Cl. 259-24.000.
Karkutt, Reimund: *See*—
Hafer, Karl-Heinz; Pelka, Walter; Karkutt, Reimund; and Frenyo, Pal, 3,782,777.
Karlson, Harald E., to Goldsworthy Engineering, Inc. Apparatus and method for producing no-twist center-pull roving packages. 3,782,096, Cl. 57-71.000.
Karube, Soichi; Hamada, Yoshio; and Suganuma, Yoshiyasu, to Kantos Seiki Company, Ltd., Hitachi Cable Ltd. and Nippon Tanshi, Ltd. Electrical connection. 3,783,440, Cl. 339-217.00s.
Kasa, Joseph. Power cord slack takeup reel. 3,782,654, Cl. 242-100.100.
Kasten, Roy F., Jr.: *See*—
Atlee, Zed J.; and Kasten, Roy F., Jr., 3,783,323.
Kastovich, John C.: *See*—
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Kasuga, Noboru, to Janome Sewing Machine Co., Ltd. Take-up lever for a sewing machine and protecting cover. 3,782,312, Cl. 112-241.000.
Kato, Yasutosi: *See*—
Kamo, Hideo; Akado, Hajime; and Kato, Yasutosi, 3,782,349.

Kato, Yukiya: *See—*
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Katsuyama, Shigeo; Atsumi, Asami; Masahide, Watanabe; Tsutomu, Sato; Toshiaki, Norimatsu; and Eizo, Nakajima, to Asahi Kasei Kogyo Kabushiki Kaisha. Apparatus for the scouring of wet-spun filament bundles. 3,781,950, Cl. 28-1.0sm.

Kaufman, Jack: *See—*
Lund, Alvin R.; and Kaufman, Jack, 3,783,176.

Kaufmann, Michael: *See—*
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Kawamura, Masao: *See—*
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Kawasaki, Takuji; Ogihara, Shoki; and Watanabe, Mikio, to Sakai Sen-I Kogyo Kabushiki Kaisha and Hokuriku Kakoki Kabushiki Kaisha. Apparatus for treating cloth with liquid. 3,782,138, Cl. 68-177.000.

Kawase, Tsuyoshi: *See—*
Kimura, Shinji; Ichihara, Izumi; and Kawase, Tsuyoshi, 3,783,020.

Keck, Donald Bruce: *See—*
De Luca, Robert David; Keck, Donald Bruce; and Maurer, Robert Distler, 3,782,914.

Keller, Harry Nevin; and Pfahnl, Arnold, to Bell Telephone Laboratories Incorporated. Technique for the fabrication of an air isolated crossover. 3,783,056, Cl. 156-3.000.

Kelly, Henry J., to Lee, Raymond, Organization, Inc., The. Toy operated by drinking straw. 3,782,028, Cl. 46-41.000.

Kelsey-Hayes Company: *See—*
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Kelso, James W., to Cintex Products, Inc. Insulating cap. 3,783,177, Cl. 174-87.000.

Kennametal, Inc.: *See—*
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Kennecott Copper Corporation: *See—*
Platzke, Ronald N.; and Spedden, Henry Rush, 3,783,158.

Kennedy, Maurice E.; and Golbeck, Bernard J., to Lewandowski, Raymond F. Oak Industries Inc. Multiple circuit control pushbutton switch assembly with improved pushbutton actuator latch bar mechanism and movable contacts. 3,783,204, Cl. 200-5.0eb.

Kenney, John Thomas, to Western Electric Company, Incorporated. Method of depositing a metal on a surface of a nonconductive substrate. 3,783,005, Cl. 117-212.000.

Kenon Corporation: *See—*
Panico, Richard, 3,782,889.

Kerst, Al F.; and Douros, John D., Jr., to Gates Rubber Company, The. Diethyl allyl phosphonate as an antimicrobial agent. 3,783,160, Cl. 426-219.000.

Kessler, Milton. Screw cap with safety cover. 3,782,604, Cl. 222-153.000.

Kester, Charles E.; and Hughes, Thomas E., to Coleman Company, Inc., The. Removable clip with rotary projectile cylinder for a gun. 3,782,359, Cl. 124-48.000.

Ketteringham, John M.: *See—*
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Khalafalla, Sanaa E.: *See—*
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Kheifeis, Georgy Naumovich; Plyatskovsky, Oskar Alexandrovich; Yankovsky, Vladimir Mikhailovich; Akhmedov, Baba Abbas Ogly; Lange, Zelman Iosifovich; Golubev, Jury Vasielevich; Solomadina, Elizaveta Andreevna; Statnikov, Vladimir Mikhailovich; Ibragimov, Irafil Naftali Ogly; Guliev, Tagi Rza Ogly; and Porokhovnikov, Jury Zinovievich. Pipe quenching unit. 3,782,160, Cl. 72-201.000.

Khraschevsky, Vitaly Alexeevich: *See—*
Lavrinenko, Vyacheslav Vasilievich; Miroshnichenko, Anatoly Petrovich; and Khraschevsky, Vitaly Alexeevich, 3,781,955.

Kielma, Ervin J., to A & A Manufacturing Company, Inc. Carrier link mechanism for flexible supply lines. 3,782,670, Cl. 248-51.000.

Kimberly-Clark Corporation: *See—*
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Kimura, Shinji; Ichihara, Izumi; and Kawase, Tsuyoshi, to Kobe Steel, Ltd. Anti-hygroscopic arc welding coated electrode and the process for producing the same. 3,783,020, Cl. 117-206.000.

Kinderman, Abraham S. Apparatus for protecting and displaying tinsel garland and the like. 3,782,538, Cl. 206-45.120.

King, Eugene: *See—*
Hochberg, Howard Martin; and King, Eugene, 3,782,367.

King, Randall N.; and Skelly, David W., to General Electric Company. Method of making a thin cadmium oxide electrode with an ionic polymer and subsequent removal of the polymer. 3,783,025, Cl. 136-76.000.

King, Robert S. Apparatus for mixing and treating fluids. 3,782,702, Cl. 261-87.000.

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Kittredge, Raymond E., to Singer Company, The. Sky fill-in projector. 3,782,815, Cl. 353-29.000.

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Kobayashi, Akira, to Aisin Seiki Kabushiki Kaisha. Vane-type rotary engine. 3,782,110, Cl. 60-39.430.

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Kobe Steel, Ltd.: *See—*
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Kober AG: *See—*
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Koger, John W.; and Lawrence, Eugene J., to United States of America, Atomic Energy Commission. Electroless coating of molybdenum on stainless steels. 3,783,014, Cl. 117-130.00r.

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Kohn, Karl Walter; and Corein, Marcel Pierre Ernest Marie, to Societe d'Etudes de Machines Thermiques. Internal-combustion-engine valve-rocker and valve-stem lubrication circuit. 3,782,357, Cl. 123-196.00s.

Kolano, Frank J., to Westinghouse Electric Corporation. Electric arc furnace apparatus having a shaped magnetic field for increasing the utilized area of the arcing surface of an electrode and improving the heating efficiency. 3,783,170, Cl. 13-18.000.

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Kolyer, John M.; and Kveglis, Albert A., to Allied Chemical Corporation. Monfunctionally-blocked tris (2-hydroxyalkyl) isocyanurates and polyesters thereof. 3,783,150, Cl. 260-248.0ns.

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Kordesch, Karl V., to Union Carbide Corporation. Air-depolarized cells utilizing a cyanate- or thiocyanate-containing electrolytes. 3,783,026, Cl. 136-86.00a.
Korpman, Ralf, to Johnson & Johnson. Extrusion process for pressure sensitive adhesive sheets and tapes. 3,783,072, Cl. 156-244.000.
Korr, Peter; Pollark, Gottfried; and Sternjakob, Rolf, to Tehalit Kunststoffwerk GmbH, Firma. Cable installation conduit with L and T joints. 3,782,420, Cl. 138-156.000.
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Kraft, Arthur A., to Vari-Systems Inc. Variable power actuator and switch therefor. 3,783,363, Cl. 318-481.000.
Krainin, Stanley. Talking book, an educational toy with multi-position sound track and improved stylus transducer. 3,782,734, Cl. 274-9.00r.
Krall, Harry J., to Eastman Kodak Company. Photographic product with photographically transparent magnetic recording medium. 3,782,947, Cl. 96-67.000.
Kramer, Dean C., to Martinson Mfg. Co., Inc. Pitless well adaptor. 3,782,462, Cl. 166-88.000.
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Kriedt, Frederick A.; Sundstrom, Thomas H.; and Walko, Richard. Submersible salvage unit. 3,782,317, Cl. 114-52.000.
Kruger, I. A/S: *See—*
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Land, Edwin H.; and Weed, Lucretia, to Polaroid Corporation. Photographic system employing film margin rails. 3,782,263, Cl. 95-89.00r.
Land, Edwin H., to Polaroid Corporation. Method of manufacturing photographic film unit. 3,783,075, Cl. 156-309.000.
Landwehrkamp, Hans; and Hoeber, Gerhard, to Schubert & Salzer Maschinenfabrik Aktiengesellschaft. Apparatus for piecing-up yarn in an open-end-spinning device. 3,782,089, Cl. 57-34.00r.
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Lide, Basil M., III; and Kowalcheck, Harry, to Westinghouse Electric Corporation. Null balance indicating and control apparatus and phase sensitive pulse responsive circuits for use therein. 3,783,356, Cl. 318-672.000.
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Thien, Gerhard; Skatsche, Othmar; and Fachbach, Heinz, 3,782,496.
Little, Vincent C.: *See*—
Berlin, Aaron S.; Little, Vincent C.; and Leadore, Toney, 3,782,288.
Litton Systems, Inc.: *See*—
Kurtz, Harvey N.; and Gourley, Charles A., 3,783,433.
Livengood, Paul; and Christophel, Reuben L., to Shenandoah Manufacturing Co., Inc. Incinerator with stack transition chamber. 3,782,301, Cl. 110-8.00c.
Lloyd, Evan M.: *See*—
Drake, Daniel D.; Lloyd, Evan M.; and Norris, Richard F., 3,783,392.
Lloyd, Evan M., to Singer Company, The. Synchroscope training device. 3,782,008, Cl. 35-19.00a.
Lochet, Jean A.: *See*—
Bick, Maurice; and Lochet, Jean A., 3,783,111.
Locke, Reginald A. J.: *See*—
Minutoli, Andrea J.; and Locke, Reginald A. J., 3,782,061.

Lohmer, Karl: *See—*
Mucke, Bruno; Lohmer, Karl; and Himmelmann, Wolfgang, 3,782,955.

Lohoff, Hermann, to CTC GmbH. Heat-exchange system. 3,782,132, Cl. 62-260.000.

Loner, Aldo, to U.S. Philips Corporation, mesne. Dry shaver with selectively engagable short and long hair cutters. 3,781,990, Cl. 30-34.100.

Long, Thomas R.; Miller, Warren H., Jr.; and Campbell, Scott V., to Digi-Data Corporation. Device for selecting data cards. 3,782,716, Cl. 271-99.000.

Lontz, John Frank; and D'Alonzo, Constance Anthony; deceased (by Bryant, Shirley; executrix). Dietetic salt substitute composition. 3,782,974, Cl. 426-229.000.

L'Oreal: *See—*
Morane, Bruno P., 3,782,002.

Lorenz, Jerome L., to Ranco Incorporated. Heat motor. 3,782,122, Cl. 60-531.000.

Love, Gordon David, to Silverson Machines, Limited. Mixing devices. 3,782,696, Cl. 259-6.000.

Lovett, Daniel B.: *See—*
Alter, Henry Ward; and Lovett, Daniel B., 3,783,292.

Loving, Jerry P.: *See—*
Batorewicz, Valeria; and Loving, Jerry P., 3,782,063.

Lowe, Dennis. Collapsible revolving door having pairs of pivot detents at the top and bottom of each leaf. 3,782,035, Cl. 49-44.000.

Lower, Kenneth Eugene: *See—*
Gonyo, Newell Joseph; and Lower, Kenneth Eugene, 3,782,144.

Lowey, Joseph: *See—*
Vilips, Viesturs Valentins; Lowey, Joseph; and Payne, Paul E., 3,783,194.

Lowrance, Edgar G., II: *See—*
Edgeington, James N., Jr.; Lowrance, Edgar G., II; and Odell, Richard G., 3,782,621.

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Lowry, Earl: *See—*
Foulks, Noah E.; and Lowry, Earl, 3,782,157.

Lox Equipment Company: *See—*
Hampton, Robert S.; Cavanna, Cesar; Kungys, Stasys J.; and Eifel, Paul J., 3,782,128.

Loyd, Patrick V. Breast pump. 3,782,385, Cl. 128-281.000.

LTV Aerospace Corporation: *See—*
Armstrong, Homer T., 3,782,505.
Metcalf, John M., 3,782,292.

Lubrizol Corporation, The: *See—*
Le Suer, William M., 3,783,131.

Lucas, Joseph, (Industries) Limited: *See—*
Potts, Matthew, 3,782,405.

Lucchesi, Oreste J., to Searle, G. D., & Co. Analog window for scintillation camera. 3,783,395, Cl. 328-147.000.

Luchok, John; and Wooding, Patrick J., to Consarc Corporation. Method of casting a plurality of ingots in a consumable electrode furnace. 3,782,445, Cl. 164-52.000.

Ludwig, Lawrence P.; and Strom, Thomas N., to United States of America, National Aeronautics and Space Administration. Spiral groove seal. 3,782,737, Cl. 277-27.000.

Luedicke, Eduard, to RCA Corporation. Magnetically-focussed cathode-ray tube comprising a tilted and skewed off-axis electron gun. 3,783,326, Cl. 313-83.000.

Luginbuhl, Pierre, to Schweizerische Industrie-Gesellschaft. Device for feeding glue from a glue container to a glue applying head. 3,782,599, Cl. 222-51.000.

Lund, Alvin R.; and Kaufman, Jack, to Markstone Manufacturing Company. Connection between electrical conduit and enclosure, and method. 3,783,176, Cl. 174-65.00r.

Luongo, Michael C., to Westinghouse Electric Corporation. Electric power plant system and method for operating a steam turbine especially of the nuclear type with electronic reheat control of a cycle steam reheater. 3,782,113, Cl. 60-73.000.

Luthi, Oscar, to Improved Machinery Inc. Drum including annular grid structure. 3,781,957, Cl. 29-121.00r.

Lutz, Friedrich, to Ruti Machinery Works Ltd. Arrangement for braking the picker stick of a loom. 3,782,423, Cl. 139-166.000.

Luursema, Meerten: *See—*
Boekkooi, Anton; Luursema, Meerten; and Tol, Taeke, 3,782,258.

Luwa AG: *See—*
Gasser, Hermann; and Plezer, Imre, 3,782,617.

Lybbert, Lyle Dean; and Atwood, Daniel H., to Atwood, Daniel H. Core tray. 3,782,582, Cl. 220-23.006.

Lynn, Robert J.; Daugirdas, Kristupas; and Reddy, Redreddy Sukumar, to Vapor Corporation. Electrical door operator. 3,782,034, Cl. 49-13.000.

Lynnknowles, Frederick, to Du Pont de Nemours, E. I., and Company. Thickness control apparatus for polymeric film structures. 3,782,873, Cl. 425-141.000.

M & J Valve Company: *See—*
Walles, Rodney A., 3,782,168.

Maas, Melvin L., to Moorman Manufacturing Company. Sampler. 3,782,200, Cl. 73-422.00r.

MacFarland, Charles H., to Scott & Fetzer Company, The. Vacuum intake safety means. 3,781,941, Cl. 15-339.000.

MacGregor, Paul T.: *See—*
Ellis, Ernest W.; MacGregor, Paul T.; and Simon, Myron S., 3,782,937.

Machleder, Warren H.; and Kuhn, Robert R., to Rohm & Haas Company. Detergent motor fuel. 3,782,912, Cl. 44-66.000.

Mackie, Harry A.: *See—*
Neumann, John W.; and Mackie, Harry A., 3,782,791.

MacMaster, Kenneth John George: *See—*
MacMaster, Malcolm John; and MacMaster, Kenneth John George, 3,782,644.

MacMaster, Malcolm John; and MacMaster, Kenneth John George, to Lane, Frances & John S., Limited. Sledger crusher. 3,782,644, Cl. 241-69.000.

MacPherson, Charles L., Jr., to Morgan Construction Company. Apparatus and method for aligning roller entry guides in a rolling mill. 3,782,158, Cl. 72-37.000.

MacRobbie, Robert Murray: *See—*
Boll, Martin William; and MacRobbie, Robert Murray, 3,782,675.
Boll, Martin William; and MacRobbie, Robert Murray, 3,782,676.

Maddock, John C.: *See—*
Doran, John T.; and Maddock, John C., 3,782,565.

Madigan, Basil M., to Goodyear Tire and Rubber Company, The. Stabilized rotor construction for wheel speed transducer. 3,783,316, Cl. 310-90.000.

Madsen, Ditlev P.; and Pikel, John H. Apparatus for rendering. 3,782,902, Cl. 23-280.000.

Maeda, Masahiro: *See—*
Kobayashi, Motoki; Sakaguchi, Masaoki; and Maeda, Masahiro, 3,782,502.

Maeda, Takashi; and Shirouchi, Yasunari, to Fujitsu Limited. Method for manufacturing electrodes of a display device utilizing gas discharge. 3,781,984, Cl. 29-624.000.

Magnaflux Corporation: *See—*
O'Connor, Donald T.; and Frine, David W., 3,782,183.

Mahan, John E.: *See—*
Reynolds, William B.; and Mahan, John E., 3,783,055.

Maico Fahrzeugfabrik GmbH: *See—*
Schier, Gunther, 3,782,342.

Maier, Alfred E.; and Wafer, John A., to Westinghouse Electric Corporation. Circuit breaker with improved flux transfer magnetic actuator. 3,783,423, Cl. 335-174.000.

Maier, Gary W.; and Jehn, David H., to Dun-Hot, Inc. Popcorn package and handle assembly. 3,782,976, Cl. 426-110.000.

Maisch, Hans; and Jung, Ernst, to Eisenwerke Gaggenau GmbH. Ventilating system for a water closet. 3,781,923, Cl. 4-213.000.

Maison, Richard L., to Rohr Industries, Inc. Rotatable bridge switch for trackless air cushion vehicle. 3,782,291, Cl. 104-130.000.

Maissel, Leon L.: *See—*
Gregor, Lawrence V.; and Maissel, Leon L., 3,783,119.

Majewski, Martin, to Stahlwerke Peine-Salzgitter, A.G. Reinforcing bar, bolt or the like. 3,782,839, Cl. 403-43.000.

Majewski, Richard M.: *See—*
Huffman, Donald; and Majewski, Richard M., 3,782,726.

Majumdar, Amalendu Jyoti, to National Research Development Corporation. Cement compositions containing glass fibers. 3,783,092, Cl. 161-170.000.

Maki, Michiyoshi: *See—*
Nanba, Mitsuo; Takano, Yukio; Higuchi, Hisayuki; and Maki, Michiyoshi, 3,783,050.

Maley, Stephen Barry, to Eastman Kodak Company. Purification of silver halide precipitates. 3,782,953, Cl. 96-94.00r.

Malkiel, Saul L., to Bendix Corporation, The. Brushless D.C. motor using hall generators for commutation. 3,783,359, Cl. 318-254.000.

Mall, Gunther, to Pfaff Industriemaschinen GmbH, Firma. Sewing unit having a stencil rail for guiding the material. 3,782,308, Cl. 112-121.150.

Mandell, Harry Creston, Jr., to Pennwalt Corporation. Temporary soil release resins applied to fabrics in laundering. 3,782,898, Cl. 8-137.000.

Mandex Manufacturing Company, Inc.: *See—*
Biba, Edward A.; and Sowinski, Leonard A., 3,783,432.

Mann, Frederick W. Cushioned adjustable swing hitch for vehicle. 3,782,760, Cl. 280-467.000.

Mann, Henry, Inc.: *See—*
Cusato, Anthony J., 3,781,993.

Manoukian, Nubar S., to Coherent Radiation. Laser having means for defogging the optical cavity thereof. 3,783,405, Cl. 331-94.550.

Mansei Kogyo Kabushiki Kaisha: *See—*
Goto, Kenjiro, 3,782,882.

Mansur, Fred E., to Owens-Illinois, Inc. Polymeric based composition. 3,782,989, Cl. 106-285.000.

Marathon Electric Manufacturing Corporation: *See—*
Widstrand, John C., 3,783,318.

Maravetz, Lester L., to Esso Research and Engineering Company. N-cyclopropylmethyl-phenylureas. 3,783,143, Cl. 260-553.00a.

Marchetto, Manfredo: *See—*
Cnobloch, Herbert; Kohlmuller, Hans; and Marchetto, Manfredo, 3,783,028.

Marcoux, Leo; and Berg, Peter G., to Texas Instruments, Incorporated. Actuator apparatus. 3,782,121, Cl. 60-527.000.

Marker, Hannes. Individually selectively useable anti-glare goggle glasses. 3,782,810, Cl. 351-47.000.

Marks III, Inc.: *See—*
Ransford, Herbert E., III, 3,783,434.

Markstone Manufacturing Company: *See—*

Lund, Alvin R.; and Kaufman, Jack, 3,783,176.
Marlboro Manufacturing, Inc.: *See*—
Cain, James P., 3,781,943.
Marlett, Everett M.; and Sanders, Robert N., to Ethyl Corporation. High energy beryllium rocket fuel compositions and processes therefor. 3,783,054, Cl. 149-109.000.
Marley Company, The: *See*—
Cates, Robert E., 3,782,451.
Cates, Robert L.; Mitchell, Robert M.; and Houx, James R., 3,782,453.
Marouby, Guy, to Societe Anonyme D.B.A. Voltage converter applying an antiskid logic element. 3,782,784, Cl. 303-21.00r.
Marra, Frank: *See*—
Carlick, Daniel J.; Marra, Frank; and Sprenger, Gerhard E., 3,783,151.
Marshall, Neil A., to International Telephone and Telegraph Corporation. Apparatus for resolving a complex A.C. voltage or current into its vector components. 3,783,259, Cl. 235-186.000.
Martelli, Mario: *See*—
Martelli, Mario; and Martelli, Mario, 3,782,543.
Martelli, Mario; and Martelli, Mario. Document recognition systems. 3,782,543, Cl. 209-75.000.
Martenson, Leroy V. Flour mill. 3,782,645, Cl. 241-100.000.
Martin, Dennis Douglas, to Dobson Park Industries Limited. Tool positioning extensible boom. 3,782,484, Cl. 173-43.000.
Martin, Frank L., Jr.: *See*—
Rubel, Edward R.; Martin, Frank L., Jr.; and Rubel, Robert B., 3,782,787.
Martin, Gerhard: *See*—
Lingens, Paul; and Martin, Gerhard, 3,782,283.
Martin, Wilhelm N., to Consolidated Bathurst Limited. Method for flame bonding by use of high velocity high temperature direct flame. 3,783,062, Cl. 156-82.000.
Martin, William T., 1/4 to Bohlman, Ivan C. and 1/4 to Bohlman, Vernon O. Continuous contact distributor for use with irrigation systems. 3,782,408, Cl. 137-344.000.
Martincic, Paul W.; and Quirk, James F., to Westinghouse Electric Corporation. Electrical bushing having a stress relieving shield and method of constructing same. 3,783,181, Cl. 174-142.000.
Martinet, Charles, to Regie Nationale des Usines Renault and Automobiles Peugeot. Isostatic working process. 3,782,159, Cl. 72-60.000.
Martinson Mfg. Co., Inc.: *See*—
Kramer, Dean C., 3,782,462.
Marttala, Tapani: *See*—
Jafs, Daniel; Marttala, Tapani; Christiansen, Kai; and Hakulin, Bertel, 3,783,095.
Marzocchi, Alfred, to Owens-Corning Fiberglas Corporation. Glass fiber reinforced elastomers. 3,782,999, Cl. 117-71.000.
Marzocchi, Alfred, to Owens-Corning Fiberglas Corporation. Treated glass fibers for glass fiber-elastomeric products and method. 3,783,001, Cl. 117-72.000.
Masahide, Watanabe: *See*—
Katsuyama, Shigeo; Atsumi, Asami; Masahide, Watanabe; Tsutomu, Sato; Toshiaki, Norimatsu; and Eizo, Nakajima, 3,781,950.
Maschinenfabrik Augsburg-Nurnberg A.G. (M.A.N.): *See*—
Pfleiderer, Ernst, 3,782,792.
Maschinenfabrik Koppern & Co., KG: *See*—
Hilbrands, Jan Willem, 3,782,246.
Maschinenfabrik Rieter AG: *See*—
Wangi, Kurt Angst; and Pfyffer, Peter, 3,782,093.
Maskin AB Selco: *See*—
Sollerud, Soren Elof Mauritz, 3,782,270.
Mason, Jack D. Reusable tree carrier. 3,782,773, Cl. 296-3.000.
Mason, Raymond J., to Minarik Electric Co. Triac motor speed control. 3,783,361, Cl. 318-331.000.
Masson Scott Thrissell Engineering Limited: *See*—
Byrt, Graham Archie Bruce; Rosevear, Adrian Tuckwell; and Clarke, William Frank, 3,782,665.
Scott, Graham Robin, 3,782,653.
Wood, David, 3,782,541.
Massoth, Franklin E.: *See*—
Carr, Norman L.; Massoth, Franklin E.; Stahlfeld, Donald L.; and Young, John E., Jr., 3,782,076.
Master Products Manufacturing Co.: *See*—
Panfill, Harry, 3,782,156.
Masuda, Takao: *See*—
Ohkubo, Kinji; Masuda, Takao; Shiba, Keisuke; Hinata, Masanao; Sato, Akira; and Ogawa, Akira, 3,782,957.
Masygan, Raymond Joseph, to Clark, Alex, Limited. Photographic developer apparatus. 3,782,264, Cl. 95-93.000.
Matas, Stephen J.: *See*—
Ballance, John B.; Matas, Stephen J.; and Kundig, Konrad J. A., 3,783,040.
Materese, Vincent, to Dayton Manufacturing Company. Waste treatment system. 3,782,550, Cl. 210-134.000.
Mathur, Radhey Mohan, to Canadian Patents and Development Limited. Electrical stepping motors having low inertia rotors. 3,783,313, Cl. 310-49.000.
Mathys, Robert. Hip joint prosthesis. 3,781,917, Cl. 3-1.000.
Mathys, Robert. Artificial joint socket. 3,781,918, Cl. 3-1.000.
Matoushek, Ralph F., to Ralston Purina Company. Xanthophyllic extraction process. 3,783,099, Cl. 195-2.000.
Matsuhisa, Tsuneyasu; and Nagai, Yoshiaki, to Fuji Photo Film Co., Ltd. Process for producing a resin-coated paper as a support for a photographic paper. 3,783,003, Cl. 117-76.00p.
Matsumura, Yoshihiro, to Nippon Air Brake Company, Ltd. Modulator in anti-skid system. 3,782,786, Cl. 303-21.00f.
Matsuo Electric Company, Limited: *See*—
Tomiwa, Hiroshi, 3,781,976.
Matsuoka, Tohru, to Nippon Electric Company, Limited. Gas laser. 3,783,404, Cl. 331-94.500.
Matsushima, Hiroshi: *See*—
Ohira, Takuya; Shiraishi, Shunta; Matsushima, Hiroshi; Kato, Yukiya; Shimokawa, Kiyomitsu; and Yoshida, Kiroshi, 3,782,738.
Matsushita Electric Industrial Co., Ltd.: *See*—
Okubo, Kei; Yamamoto, Katuyuki; and Murayama, Osamu, 3,783,064.
Shitaya, Takao; Tshida, Toro; and Sato, Hisanao, 3,783,051.
Matsushita Electric Industrial Company Limited: *See*—
Yamamoto, Katsumiko; and Nakahe, Ryuhei, 3,783,367.
Matsuzaki, Soichiro; and Kondo, Isao, to Olympus Optical Co., Ltd. Apparatus for indicating exposure conditions of cameras equipped with electric shutter mechanisms. 3,782,254, Cl. 95-10.0ce.
Mattel, Inc.: *See*—
Summerfield, William F., 3,782,732.
Matty, Thomas C., to Westinghouse Electric Corporation. Method of and apparatus for producing a vehicle movement control signal in response to sensing the direction of travel of a vehicle. 3,783,339, Cl. 317-5.000.
Mauch, Harald: *See*—
Scholl, Hermann; Mauch, Harald; Rittmannsberger, Norbert; and Soll, Wolfgang, 3,782,339.
Maurer, Erich: *See*—
Schaloske, Peter; and Maurer, Erich, 3,782,316.
Maurer, Robert Distler: *See*—
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Maurey, Joseph E.: *See*—
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Maurey Manufacturing Corporation: *See*—
Campbell, James D., Jr.; and Maurey, Joseph E., 3,782,211.
Maxie, Lee. Ant poison distributing apparatus. 3,782,606, Cl. 222-244.000.
Maytag Company, The: *See*—
Cotton, Curran D., 3,782,001.
Mayuzumi, Tetsuya: *See*—
Ohto, Michihiro; Noshiro, Atsumi; and Mayuzumi, Tetsuya, 3,782,940.
McArthur, Colin S., to Reynolds, R. J., Tobacco Company. Apparatus for electrically perforating sheet material. 3,783,237, Cl. 219-384.000.
McBride, Edward D., to Outboard Marine Corporation. Neutral start only mechanism. 3,782,350, Cl. 123-179.00k.
McConnell, John A.; and Williamson, Everett W. Valve mechanism. 3,782,603, Cl. 222-153.000.
McConnell, Robert G., to Honeywell Inc. Automatic focus positioning circuit. 3,783,269, Cl. 250-201.000.
McCord, Robert C., to Vistron Corporation. Toothbrush and dental-floss dispenser. 3,782,397, Cl. 132-84.00a.
McCormack, Kent, to Texas Instruments, Incorporated. Method and apparatus for detection of petroleum products. 3,783,284, Cl. 250-339.000.
McCray, Ferris L., to Allis-Chalmers Corporation. Fluid control system for earthworking apparatus including automatic pressure regulating means. 3,782,478, Cl. 172-4.500.
McCreery, James F.: *See*—
Jones, Dennis G.; and McCreery, James F., 3,781,956.
McCullagh, John S.: *See*—
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McCullough, John R.: *See*—
Schramm, Harold J.; and McCullough, John R., 3,782,704.
McDermott, Hugh L. Rotary fluid pressure device. 3,782,866, Cl. 418-61.000.
McDonald, Bernard. Surgical retractor. 3,782,370, Cl. 128-20.000.
McDonnell Douglas Corporation: *See*—
Reibold, Robert C., 3,782,368.
McGeeney, William S.; Trapp, George S.; and Zsamboky, Leslie, to Wean United, Inc. Apparatus for dismantling and assembling roll assemblies for a 4-high rolling mill. 3,782,161, Cl. 72-239.000.
McGimpsey, John W. Traffic control system. 3,783,446, Cl. 340-31.00r.
McGraw-Edison Company: *See*—
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McIntosh Laboratory, Inc.: *See*—
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McKelvey, Ralph E.: *See*—
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McKindra, Clayton D.: *See*—
Campagnuolo, Carl J; McKindra, Clayton D.; Sewell, Clinton J.; Villarroel, Fernando; and Woolston, Lionel L., 3,783,310.
McLarson, John K., to Shell Oil Company. Leak detector for fluid conductors. 3,782,172, Cl. 73-40.50r.
McMillan, Roderick Duncan. Rotary switch three pin circuit tester for electrical outlet socket. 3,783,371, Cl. 324-51.000.

McNeill, Frederick J.; Kulik, Joseph S., Jr.; and Smith, David L., Sr., to GTE Sylvania Incorporated. Tubular incandescent lamp having improved filament support. 3,783,329, Cl. 313-274.000.

McNerney, Richard P., to Schlumber Technology Corporation. Wire insulation splicing technique for high temperature well logging cable. 3,783,057, Cl. 156-49.000.

McWilliams, Joseph E. Nutting truck unloading arrangement for mail bag loading apparatus. 3,782,566, Cl. 214-41.000.

Means, Richard E.; Kallianos, Andrew G.; and Tenney, Kinwood P., to Liggett & Myers Incorporated. β-methylvaleric acid alkyl esters as tobacco flavorants. 3,782,391, Cl. 131-17.00r.

Medical Development Corporation: *See*—
Holbrook, Le Grand K., 3,782,414.

Medical Incorporated: *See*—
Anderson, Lawrence, 3,781,969.

Medovar, Boris Izrailevich; Popov, Viktor Andreevich; Alferov, Jury Fedorovich; Bogachenko, Alexey Georgievich; and Latash, Jury Vadimovich. Method of operation of a convertible ESR furnace-installation. 3,781,935, Cl. 13-34.000.

Medovar, Boris Izrailevich; Popov, Viktor Andreevich; Alferov, Jury Fedorovich; Bogachenko, Alexei Georgievich; and Latash, Jury Vadimovich. Electroslag remelting plant. 3,783,168, Cl. 13-9.000.

Medvick, Richard J.: *See*—
Gallagher, Bernard J.; Shufflebarger, Earl D.; Simko, David M.; Medvick, Richard J.; Boylan, John R.; and Danko, Oliver L., 3,782,685.

Meek, John S.; and Nelson, J. Roy. Temperature indicating vessel. 3,782,195, Cl. 73-343.00b.

Meess, Jack D.; Kastovich, John C.; and Lackey, Robert S., to Westinghouse Electric Corporation. Absorption refrigeration system. 3,782,134, Cl. 62-476.000.

Mefferd, Wayne S.; and Hobart, James L., to Coherent Radiation Laboratories. Laser optical resonator. 3,783,407, Cl. 331-94.50c.

Mefina S.A.: *See*—
Torre, Marcel, 3,783,130.

Mehnert, Gottfried, to Bekum Maschinenfabriken GmbH. Apparatus for separating the surplus of thermoplastic material from the neck portions of blow-molded containers. 3,782,877, Cl. 425-292.000.

Meilun, Edwin C.: *See*—
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Melloy, George F.: *See*—
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Mendelson, Ralph A.: *See*—
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Mendelson, Ralph A.; Staudhammer, Karl P.; and Valencia, Roberto, Jr., to United States of America, Interior, mesne. Corrosion resistant, non-austenitic Fe-Ni-Mo-Co-Se alloy. 3,782,923, Cl. 75-122.000.

Mengeringhausen, Max; Quenzel, Hermann; Gehrig, Reinhold; and Spanheimer, Willi, to Mero AG. Apparatus for the manufacture of hollow rod elements. 3,783,232, Cl. 219-124.000.

Menold, Robert F.; and Summers, James J., to Mine Safety Appliances Company. Goggle-supporting assembly for hard hats. 3,781,915, Cl. 2-10.000.

Mercer, Allen C.: *See*—
Kahwati, Ghassan N.; and Mercer, Allen C., 3,782,560.

Merit Company, The: *See*—
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Mero AG: *See*—
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Merrick, Woodrow W.: *See*—
Norris, Clarence G.; and Merrick, Woodrow W., 3,781,962.

Merryfull, Albert Edward. Refrigeration system evaporator. 3,782,131, Cl. 62-218.000.

Messenger, William E., to Scovill Manufacturing Company. Childproof aerosol actuator consisting of two members operative by relatively rotating the two members. 3,782,605, Cl. 222-153.000.

Messer Griesheim GmbH: *See*—
Rohe, Josef; and Staacks, Dieter, 3,783,229.

Messerschmitt-Bolkow-Blohm Gesellschaft mit beschrankter Haftung: *See*—
Butter, Karl; Kaufmann, Michael; and Dederra, Helmut, 3,782,118.
Hohl, Jean-Marie; Schipf, Anton; and Schmid, Werner, 3,782,808.

Messmer, Edwin E. Label applicator. 3,783,077, Cl. 156-446.000.

Metal Box Company Limited, The: *See*—
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Metcalf, John M., to LTV Aerospace Corporation. Switching system for a transportation system employing a guideway. 3,782,292, Cl. 104-130.000.

Meteor-Siegen Apparatebau Paul Schmeck GmbH: *See*—
Isermann, Heinrich, 3,782,817.

Metrology Systems Corporation: *See*—
Fink, Anton; and Wentworth, Harold, 3,782,742.

Mettler Instrumente AG: *See*—
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Meyer, Edward: *See*—
Ruhl, Charles A. H.; Meyer, Edward; and Chatterjea, Probir K., 3,782,489.

Meyer, Thomas I.; Shaffer, Thomas N.; and Wright, Lawrence G., to Westinghouse Electric Corporation. Flowmeter apparatus. 3,782,193, Cl. 73-181.000.

Meyers, Michael: *See*—
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Mica Trust: *See*—
Perdue, Roy D.; and Cohn, Morris I. (said Purdue assor. to), 3,783,096.

Michelson, Irving, to American Safety Equipment Corporation. Method of making a cigarette of reduced biological damage capability. 3,782,393, Cl. 141-9.000.

Micheron, Francois; and Bismuth, Guy, to Thomson-CSF. Ferro-electric system for bulk storage of phase holograms. 3,782,802, Cl. 350-3.500.

Microdot, Inc.: *See*—
Kiszewski, Robert F., 3,782,250.

Middleton, Verne L., to Olin Corporation. Method of producing a mechanical joint between metal sheets. 3,781,971, Cl. 29-470.100.

Midland-Ross Corporation: *See*—
Nesbitt, John D.; Hemsath, Klaus H.; and Vereecke, Frank J., 3,782,883.

Miknaitis, Sigitas, to GTE Automatic Electric Laboratories, Inc. Printed wiring card mountable reed switch. 3,783,421, Cl. 335-152.000.

Mildner, Walfrid, to ELD Elektronische Lichenaniagen Studiengesellschaft fur Wissenschafhiche Datenberarbatung mbH. Battery adapter. 3,783,378, Cl. 324-73.00r.

Miles, John M.; and Sherk, Fred T., to Phillips Petroleum Company. Arylene sulfide polymerization process. 3,783,138, Cl. 260-79.000.

Miles Laboratories, Inc.: *See*—
Wiley, Richard H., 3,783,154.

Milgo Electronic Corporation: *See*—
Vilips, Viesturs Valentins; Lowey, Joseph; and Payne, Paul E., 3,783,194.

Miller, Bernard: *See*—
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Miller, Eugene Boyd. Pistol-grip garden hoe. 3,782,482, Cl. 172-381.000.

Miller, George D., to Armco Steel Corporation. Simplified strip accumulation. 3,782,662, Cl. 242-55.000.

Miller, Jerald E.: *See*—
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Miller, Sandra Levey: *See*—
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Miller, Walter E., Jr.; Peacher, Teddy J.; Duke, Jimmy R.; and Sitton, Robert L., to United States of America, Army. Beamrider missile guidance method. 3,782,667, Cl. 244-3.130.

Miller, Warren H., Jr.: *See*—
Long, Thomas R.; Miller, Warren H., Jr.; and Campbell, Scott V., 3,782,716.

Milner, Freddy L. Self closing tent door. 3,782,399, Cl. 135-14.00d.

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Milovich, Dimitrije; and Stoveken, Wayne E., 3,782,744.

Milovich, Dimitrije: *See*—
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Milovich, Dimitrije; and Stoveken, Wayne E., 60% to said Milovich and 40% to Stoveken, Wayne E. Snow surfboard with stepped stabilizing sides. 3,782,744, Cl. 280-18.000.

Minarik Electric Co.: *See*—
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Mine Safety Appliances Company: *See*—
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Minnesota Mining and Manufacturing Company: *See*—
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Minoda, Minoru: *See*—
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Minster Machine Company, The: *See*—
Voorhees, John E., 3,782,618.

Minutoli, Andrea J.; and Locke, Reginald A. J. Concrete building construction with improved post tensioning means. 3,782,061, Cl. 52-125.000.

Mirasol, Salustiano S.: *See*—
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Miroshnichenko, Anatoly Petrovich: *See*—
Lavrinenko, Vyacheslav Vasilievich; Miroshnichenko, Anatoly Petrovich; and Khraschevsky, Vitaly Alexeevich, 3,781,955.

Mirtain, Henri Jean, to Uniroyal. Pneumatic tire and tread therefor having variable rolling contact with the ground. 3,782,438, Cl. 152-209.000.

Mischenko, Nicholas, to Bell & Howell Company. Reel drive. 3,782,658, Cl. 242-192.000.

Mitchell, Graham R.: *See*—
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Mitsubishi Denki Kabushiki Kaisha: *See*—
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Mittelman, Edward R.: *See*—
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Miura, Tatuo; and Kaneko, Toshiro, to Nippondenso Co., Ltd. Method for making armature-commutator assembly having armature winding of very small diameter. 3,781,981, Cl. 29-597.000.
Miyamoto, Kimio: *See*—
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Miyatake, Masao: *See*—
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Mizukoshi, Masahiko: *See*—
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MI³, Inc.: *See*—
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Mnilk Reinhold; Kurreck, Manfred; and Geltenpoth, Ulrich, to Holstein & Kappart, Maschinenfabrik Phonix GmbH. Molding apparatus. 3,782,879, Cl. 425-450.000.
Moak, Mervin S. Bar scraper and mud drag. 3,782,479, Cl. 172-26.500.
Mobil Oil Corporation: *See*—
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Modan, Michael M.: *See*—
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Moen, Alfred M. Faucet construction. 3,782,417, Cl. 137-625.170.
Molex, Inc.: *See*—
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Monks, Frank E., to Aluminum Company of America. Heat-sealable coated metal package and method of making same. 3,783,071, Cl. 156-217.000.
Monroe Auto Equipment Company: *See*—
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Monte, Matthew Salles; deceased (by Monte, Teresa B.; administratrix). Smoking tobacco composition. 3,782,392, Cl. 131-17.000.
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Montgomery, Hubert T. Sawmill dog assembly. 3,782,711, Cl. 269-31.000.
Montgomery, Ray E., to Bemis Company, Inc. Plastic bags. 3,782,622, Cl. 229-54.00r.
Montgomery, Thurman R. Self unloading carrying dolly. 3,782,569, Cl. 214-506.000.
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Moody, Robert E. Freely mounted gear. 3,782,215, Cl. 74-410.000.
Moore, Alan, to Rolls-Royce (1971) Limited. Gas turbine engine blades. 3,782,852, Cl. 416-97.000.
Moore, Alvin Edward. Resilient, tubular bumpers. 3,782,767, Cl. 293-71.00r.
Moore, Alvin Edward. Tubular, Shock-absorbing bumpers. 3,782,768, Cl. 293-71.00r.
Moore, Charles H. Panel positioning apparatus and method. 3,782,771, Cl. 294-67.00r.
Moore, George A. Apparatus for pressure cooking food. 3,782,267, Cl. 99-410.000.
Moore, Glenn E.; and Carl, Robert C., to Dover Corporation. Shut-off valve assembly. 3,782,401, Cl. 137-68.000.
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Morane, Bruno P., to L'Oreal. Hair dryer particularly adapted to the drying of long hair. 3,782,002, Cl. 34-99.000.
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Moretini, Billy, to International Design Corporation. Modular merchandise display device. 3,782,296, Cl. 108-101.000.
Morgan Construction Company: *See*—
MacPherson, Charles L., Jr., 3,782,158.
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Morgan, Thomas Edward; and Koslo, Robert Carl, to International Telephone and Telegraph Corporation. Strap tensioning and cut-off tool. 3,782,426, Cl. 140-123.600.
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Morita, Koh; and Ishii, Teiji, to Chisso Corporation. Vacuum metallized polyolefins. 3,783,012, Cl. 117-107.000.
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Morris, Louis, Jr.; Slanina, Donald R.; and Seidel, Martin P., to Westinghouse Electric Corporation. Electrical inductive apparatus having rigid foam supporting members and methods of providing same. 3,783,426, Cl. 336-196.000.
Morris, Ronald P. Non-interfering golf tee. 3,782,723, Cl. 273-33.000.
Mosely, Donald E., to Bitco, Inc., mesne. Lumber separator. 3,782,540, Cl. 209-73.000.
Moser, Werner; Buchi, Paul; and Weber, Peter, to Aluminium AG. Warp beam flange. 3,782,655, Cl. 242-118.500.
Motor Wheel Corporation: *See*—
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Moyer, Rudolph H.; and Sibbett, Donald J., to Geomet, Incorporated. Apparatus for assaying enzyme activity. 3,783,105, Cl. 195-127.000.
Mrowca, Joseph J., to Du Pont de Nemours, E. I., and Company. Cyclopentadienyl(group IV-b metal) hydrocarbon-sulfinates and sulfinates as agents for increasing crop yields. 3,782,917, Cl. 71-97.000.
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Mucke, Bruno; Lohmer, Karl; and Himmelmann, Wolfgang, to Agfa-Gevaert Aktiengesellschaft. Photographic material. 3,782,955, Cl. 96-114.800.
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Mueller, Helmut, to Voith Getriebe KG. Hydrokinetic device. 3,782,514, Cl. 188-296.000.
Muhlpfordt, Werner, to U.S. Philips Corporation. Reactor for preparing metal powders. 3,782,706, Cl. 266-22.000.
Mullen, Joseph D.; and Nivens, Mary P., to General Mills, Inc. Textured base materials or products from certain carboxyalkyl ethers of polygalactomannans and process of preparing same. 3,782,962, Cl. 426-70.000.
Muller, Jacques. Filter and aerator device. 3,782,549, Cl. 210-95.000.
Murayama, Osamu: *See*—
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Murphy, James W.; Frantz, Robert J.; and Hildebrecht, Harold V., to Towmotor Corporation. Lift truck mast-mounting arrangement. 3,782,571, Cl. 214-674.000.
Murray, William K., to Tri-State Oil Tool Industries Inc. Method for cutting and retrieving pipe from a floating drill ship. 3,782,459, Cl. 166-.500.
Muschalek, Ben E., Jr. Hydraulic stroke increaser. 3,782,123, Cl. 60-533.000.
Musser, Malcolm E. Bag holder and opening device. 3,782,073, Cl. 53-384.000.
Muzzy, Raymond J., to United States of America, Navy. Hybrid generator. 3,782,112, Cl. 60-251.000.
Myers, Charles Frank, to Motorola, Inc. Method of making high speed shallow junction semiconductor device. 3,783,046, Cl. 148-187.000.
Myers, Robert E. Reinforced structural member of fiberglass and method of making the same. 3,783,066, Cl. 156-161.000.
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Nakanishi, Hisao; and Ushiro, Takushi, to Mitsubishi Denki Kabushiki Kaisha. Direct heated cathode. 3,783,330, Cl. 313-310.000.
Nakano, Kenji; and Teramoto, Ryuzo, to Hitachi Shipbuilding & Engineering Co., Ltd. Joint construction for low temperature purpose liquid-tight. 3,782,053, Cl. 52-753.00j.
Nalle, George S., Jr. Apparatus for extruding woven plastic mesh. 3,782,872, Cl. 425-131.000.
Nalooka, Edward C.; and Street, Thomas R., Jr., to Ford Motor Company. Adjustable tie rod link. 3,782,221, Cl. 74-586.000.
Nam, Joong Woo. Gear-type rotary engine. 3,782,340, Cl. 123-823.000.
Nanba, Mitsuo; Takano, Yukio; Higuchi, Hisayuki; and Maki, Michiyoshi, to Hitachi, Ltd. Method of making semiconductor device using polycrystal thin film for impurity diffusion. 3,783,050, Cl. 148-188.000.
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Navarro, Jorge Roca. Rotary roasting device. 3,782,268, Cl. 99-421.00p.
Neal, Maurice M. Offset press numbering assembly. 3,782,277, Cl. 101-76.000.
Neeb, Karl Heinz; Neidl, Herbert; and Stockert, Heinz, to Siemens Aktiengesellschaft. Device for measuring activity concentration in primary circulation systems of nuclear reactors. 3,783,268, Cl. 250-370.000.
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Nelson, John E., to Diamond Power Speciality Corporation. Method and apparatus for cleaning heated surfaces. 3,782,336, Cl. 122-379.000.
Nesbitt, John D.; Hemsath, Klaus H.; and Vereecke, Frank J., to Midland-Ross Corporation. Flat flame burner having a low air to gas ratio. 3,782,883, Cl. 431-185.000.
Nestorovic, Mioljub R., to McIntosh Laboratory, Inc. Full wave peak respond meter. 3,783,379, Cl. 324-103.00p.
Neumann, Gerhard M., to Patent-Treuhand-Gesellschaft fur elektrische Gluhlampen mbH. Halogen incandescent lamp. 3,783,328, Cl. 313-222.000.
Neumann, John W.; and Mackie, Harry A., to Udylite Corporation, The. Vortex diffuser fluid bearing device. 3,782,791, Cl. 308-9.000.
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Newcomb, Sidney M. Bottle orienting device. 3,782,517, Cl. 193-43.00r.
Newhall, Henry S., to Koppers Company, Inc. Method and apparatus for the continuous fluidizing of steel. 3,783,169, Cl. 13-10.000.
Newton, Emerson H.; Ketteringham, John M.; Sienczyk, John L.; and Isaacson, Calvin M, to Shipley Company, Inc., The, mesne. Electrolytic regeneration of spent etchant. 3,783,113, Cl. 204-106.000.
Nicoladu, Michael C. Material for direct thermoelectric energy conversion with a high figure of merit. 3,782,927, Cl. 75-134.00b.
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Nisenson, Peter; and Blackman, Elliot S., to Itek Corporation. Optical device for characterizing the surface or other properties of a sample. 3,782,827, Cl. 356-120.000.
Nishiba, Seishiro; Kuroyanagi, Masasi; and Ogawa, Koichi, to Denki Onkyo Company, Ltd. Contactless switching apparatus. 3,783,430, Cl. 338-32.00h.
Nishimatsu Construction Company Limited: *See—*
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Norgaard, Richard Arlund; and Larsen, Rex Stemann, to Eskofot A/S. Feeler device, especially for photocopying apparatus. 3,782,715, Cl. 271-57.000.
Normanton, John Reginald, to Duplan Corporation, The. Method of bonding using strings of adhesive. 3,783,074, Cl. 156-291.000.
Norris, Clarence G.; and Merrick, Woodrow W., to General Refractories Company. Apparatus for applying a metal plate to a refractory brick. 3,781,962, Cl. 29-200.00b.
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Nozawa, Hideo, to Kabushiki Kaisha Daini Seikosha. Rectangular waterproof watch casing assembly. 3,782,105, Cl. 58-90.00r.
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Nyc, Vladimir. Remote, controlled, self-propelled lawn sprinkler. 3,782,633, Cl. 239-191.000.
Nye, William M.; and Jones, Stanley W., to Lanier Electronic Laboratory, Inc., mesne. Switching apparatus for selectively interconnecting dictation machines and stations. 3,783,199, Cl. 179-100.1dr.
Oak Industries, Inc.: *See—*
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O'Connor, Donald T.; and Frine, David W., to Magnaflux Corporation. Detection of paster welds with acoustic emission. 3,782,183, Cl. 73-100.000.

O'Connor, Joseph M., to Peerless of America, Incorporated. Method of fabricating a finned heat exchanger tube. 3,781,959, Cl. 29-157.30b.

Odell, Richard G.: *See—*
Edgeington, James N., Jr.; Lowrance, Edgar G., II; and Odell, Richard G., 3,782,621.

Oelmayer, Reinhold; Seelos, Albert; Reif, Winfried; Nagy, Denes; and Stock, Hans Joachim, to Morat, Franz, GmbH, Firma. Apparatus for the optical-electrical scanning of a drawing moving a large number of points of different colors. 3,783,275, Cl. 250-226.00.

Oetiker, Alfred: *See—*
Froehlich, Alfred; Oetiker, Alfred; and Schaller, Heinrich, 3,782,948.

Oettmeier, Bert W.; and Porter, Samuel J., to Gulf Oil Corporation. Process for manufacturing gas-entrained aqueous gel explosive. 3,783,053, Cl. 149-41.000.

Offutt, Warren B., to Cutler-Hammer, Inc. Method and apparatus for measuring rotational angles by measuring changes in optical beam path length. 3,782,826, Cl. 356-110.000.

Ogasawala, Nobuhico: *See—*
Takahashi, Osamu; and Ogasawala, Nobuhico, 3,783,315.

Ogawa, Akira: *See—*
Ohkubo, Kinji; Masuda, Takao; Shiba, Keisuke; Hinata, Masanao; Sato, Akira; and Ogawa, Akira, 3,782,957.

Ogawa, Koichi: *See—*
Nishiba, Seishiro; Kuroyanagi, Masasi; and Ogawa, Koichi, 3,783,430.

Ogawa, Takuzo: *See—*
Yatsuo, Tsutomu; and Ogawa, Takuzo, 3,783,350.

Oggoian, Walter, to Smithe, F. L., Machine Company, Inc. Die cutter drive for an envelope blank forming machine. 3,782,232, Cl. 83-236.000.

Ogihara, Shoki: *See—*
Kawasaki, Takuji; Ogihara, Shoki; and Watanabe, Mikio, 3,782,138.

Chi, Reiichi: *See—*
Shimamura, Isao; Iijima, Yoo; Okutsu, Eiichi; Iwano, Haruhiko; Shishido, Tadao; and Ohi, Reiichi, 3,782,945.

Ohira, Takuya; Shiraishi, Shunta; Matsushima, Hiroshi; Kato, Yukiya; Shimokawa, Kiyomitsu; and Yoshida, Kiroshi, to Nishimatsu Construction Company Limited. Tail seal for a shield type tunneling machine. 3,782,738, Cl. 277-58.000.

Ohkubo, Kinji: *See—*
Arai, Atsuaki; Ohkubo, Kinji; Tajima, Tatsuya; Tanaka, Mitsugu; and Tutiya, Yosinori, 3,782,946.

Ohkubo, Kinji; Masuda, Takao; Shiba, Keisuke; Hinata, Masanao; Sato, Akira; and Ogawa, Akira, to Fuji Photo Film Co., Ltd. Fogged, direct-positive silver halide emulsion layer containing a cyanine dye and a compound containing a metal of Group VIII of the eriodic table. 3,782,957, Cl. 96-101.000.

Ohlschlager, Hans; Riester, Oskar; Ghys, Theofiel Hubert; Verhille, Karel Eugeen; and Vanheertum, Ir Johannes, to Agfa-Gevaert Aktiengesellschaft. Sensitized electrophotographic layers. 3,782,933, Cl. 96-1.700.

Ohlschlager, Hans; Ghys, Theofiel Hubert; Verhille, Karel Eugeen; and Kampfer, Helmut, to Agfa-Gevaert Aktiengesellschaft. Spectrally sensitized electrophotographic material. 3,782,934, Cl. 96-1.700.

Ohneda, Shoichi: *See—*
Sugimoto, Noboru; and Ohneda, Shoichi, 3,783,191.

Ohto, Michihiro; Noshiro, Atsumi; and Mayuzumi, Tetsuya, to Dai Nippon Printing Co., Ltd. Ion-etching method. 3,782,940, Cl. 96-36.000.

Ojala, William K.: *See—*
Boltz, Ronald R.; and Ojala, William K., 3,782,639.

Okada, Hiroshi: *See—*
Kitayama, Minoru; Nakamura, Motoharu; Inaoka, Masanobu; and Okada, Hiroshi, 3,783,034.

Okamoto, Lisaku, to Nippon Gakki Seizo Kabushiki Kaisha. Group training systems utilizing electronic musical instruments. 3,782,237, Cl. 84-470.000.

Okamoto, Mitsuhiro: *See—*
Ito, Shoji; Okamoto, Mitsuhiro; and Hasegawa, Katsumi, 3,782,648.

Okazaki, Katsutoshi, to Yehan Numata. Inside micrometer comprising a counter. 3,781,998, Cl. 33-166.000.

Okubo, Kei; Yamamoto, Katuyuki; and Murayama, Osamu, to Matsushita Electric Industrial Co., Ltd. Method and apparatus for automatically connecting tapes. 3,783,064, Cl. 156-159.000.

Okutsu, Eiichi: *See—*
Shimamura, Isao; Iijima, Yoo; Okutsu, Eiichi; Iwano, Haruhiko; Shishido, Tadao; and Ohi, Reiichi, 3,782,945.

Olin Corporation: *See—*
Eisenlohr, Douglas H.; and Schiessl, Henry W., 3,783,035.
Middleton, Verne L., 3,781,971.

Olin, Paul H., to Timesavers, Inc. Wide abrasive belt type lumber planing machine. 3,782,044, Cl. 51-138.000.

Olivares, Ismael Adolfo; Bean, Frederick Roland; and Haist, Grant Milford, to Eastman Kodak Company. Photographic element comprising a hydroxy substituted aliphatic carboxylic acid aryl hydrazide. 3,782,949, Cl. 96-76.00r.

Oliver, Calvin C.: *See—*
Shortall, John J.; and Oliver, Calvin C., 3,783,377.

Oliver Machinery Company: *See—*
Solomon, William H.; Davies, John R.; and Eorward, Carrel M., 3,783,058.

Olivett, Alessandro, to Soc. S. A. M. E. R. Audio-visual teaching system consisting of a self propelling magnetic reading unit sliding along magnetic tracks pre-recorded on paged sheets. 3,782,005, Cl. 35-8.00a.

Olivetti, Ing., C., & C., S.p.A.: *See—*
Gianardi, Acostino, 3,781,944.
Pagella, Elio; and Guerici, Carlo, 3,781,997.
Pagella, Elio, 3,782,501.
Sandrone, Bruno; and Toniolo, Antonio, 3,782,666.

Olschewski, Paul, bison-werke Bahre and Greten GmbH KG. Apparatus for the continuous manufacture of chip boards. 3,782,875, Cl. 425-223.000.

Olsen, Kaare Ritter. Method and apparatus for depositing foundations under submerged structures. 3,782,127, Cl. 61-50.000.

Olsson, Sven-olle Paul, to Trelleborgs Gummifabriks Aktiebolag. Methods of manufacturing endless conveyor belts. 3,783,063, Cl. 156-137.000.

Oltman, Henry G., Jr., to Hughes Aircraft Company. Means and method for suppressing microwave resonance in elliptical cavities. 3,783,401, Cl. 330-56.000.

Olympus Optical Co., Ltd.: *See—*
Matsuzaki, Soichiro; and Kondo, Isao, 3,782,254.

Olympus Optical Company Limited: *See—*
Fujimori, Ryo; and Kamachi, Shinichi, 3,782,834.
Kamachi, Shinichi, 3,783,270.

Omar, Mohammed Hosny: *See—*
Bishay, Adli; El Hamamsy, Mahmoud Aly; and Omar, Mohammed Hosny, 3,782,958.

Omeda, Junichi: *See—*
Tsukada, Toshihisa; Omeda, Junichi; and Kawamura, Masao, 3,783,351.

Onare, Robert F., to Allis-Chalmers Corporation. Method and apparatus for heat treating with heat recuperation from material cooling and auxiliary heat during startup. 3,782,888, Cl. 432-14.000.

Ondrey, John A.; and Basila, Michael R., to Howe-Baker Engineers, Inc. Sweetening liquid hydrocarbons with a calcined heavy metal exchanged zeolite. 3,783,125, Cl. 208-191.000.

Ono, Kuniharu; Kamae, Tsutomu; Takahashi, Kinzo; and Miyatake, Masao, to Sumitimi Jukikai Kogyo Kabushiki Kaisha. Lifting magnet assembly. 3,783,344, Cl. 317-123.000.

Onoda Cement Co., Ltd.: *See—*
Uchikawa, Hiroshi; and Uchida, Shunichiro, 3,782,992.

Oppel, John A.: *See—*
Badey, Paul E.; and Oppel, John A., 3,783,431.

Oppenheim, Rudolf: *See—*
Brandis, Helmut; and Oppenheim, Rudolf, 3,782,925.

Orban, Jean: *See—*
Vital, Zoltan; and Orban, Jean, 3,783,336.

Orii, Masaru. Workpiece transfer means. 3,782,561, Cl. 214-1.0bb.

Ormont, Louis. Convertible roof for a station wagon. 3,782,776, Cl. 296-137.00b.

Ort, Wolfgang: *See—*
Ettischer, Helmut; Blattner, Dietmar; and Ort, Wolfgang, 3,782,260.

Orthopedic Equipment Company, Inc.: *See—*
Smythe, Walter J., 3,782,373.

Orzel, Edward S., to Weatherhead Company, The. Brake warning switch requiring recentering pressure. 3,782,780, Cl. 303-6.00c.

Osada, Hisasi; and Akino, Tadaharu, to TDK Electronic Company. Inductance coil. 3,783,417, Cl. 333-70.00s.

Osaka Kiko Kabushiki Kaisha: *See—*
Nakamura, Minoru; and Umefuji, Akira, 3,782,097.

Oshima, Masakazu. Rectifier circuit using mos field effect transistor. 3,783,381, Cl. 324-132.000.

Ostdiek, Arthur J., to United States of America, Army. Vortex linear accelerometer. 3,782,206, Cl. 73-515.000.

Osteen, Mitchell M., to General Electric Company. Joint structure. 3,782,056, Cl. 52-758.00f.

Otis Elevator Company: *See—*
Krauer, Otto Albert, 3,783,358.

O'Toole, Gerald: *See—*
Caputo, James P.; and O'Toole, Gerald, 3,783,256.

Otte, Richard F., to Raychem Corporation. Temperature actuated connector. 3,783,429, Cl. 337-393.000.

Outboard Marine Corporation: *See—*
Britnell, Douglas A., 3,782,779.
Hackbarth, Eugene R.; and Ward, Harry M., III, 3,782,851.
McBride, Edward D., 3,782,350.
Ward, Harry M., III, 3,782,212.

Owens Illinois, Inc.: *See—*
Field, Marshall, 3,783,416.

Owens-Corning Fiberglas Corporation: *See—*
Belue, James C.; and Schaefer, Robert S., 3,782,996.
Marzocchi, Alfred, 3,782,999.
Marzocchi, Alfred, 3,783,001.

Owens-Illinois, Inc.: *See—*
Kozlowski, Tadeusz; and Pemberton, Ernest H., 3,782,252.
Mansur, Fred E., 3,782,989.

Oyama, Noboru: *See—*
Nakada, Tetsuo; and Oyama, Noboru, 3,782,276.

Paffen, Maria Magdalena Mathilda; Appels, Johannes Arnoldus; and Verkuijlen, Wilhelmus Henricus Cornelis Gerardus, to U.S. Philips Corporation. Method of manufacturing a semiconductor device and semiconductor device manufacture by using such a method. 3,78,047, Cl. 148-187.000.

Page, Michael E. Frozen water containers with liquid dispenser for camping. 3,782,602, Cl. 222-143.000.

Page, Sarah J. Shield for intravenous feeding apparatus. 3,782,378, Cl. 128-133.000.

Page, Sarah J. Medical tube holder. 3,782,388, Cl. 128-348.000.

Pagella, Elio; and Guerici, Carlo, to Olivetti, Ing., C., & C., S.p.A. Diameter gauge for machine tools. 3,781,997, Cl. 33-143.001.

Pagella, Elio, to Olivetti, Ing., C., & C., S.p.A. Lubricating-oil control device for use in machines, for instance machine tools. 3,782,501, Cl. 184-6.400.

Painter, William Howard, to PM Holding Co., mesne. Beneficiation of phosphate ores. 3,782,539, Cl. 209-2.000.

Palitex Project Company-G.m.b.H.: *See*—
Bermges, Manfred, 3,782,098.
Franzen, Gustav; and Nimtz, Klaus, 3,782,087.

Pall Corporation: *See*—
Rosenberg, David J., 3,782,083.

Palmour, Harold H., to Armco Steel Corporation. Power fluid conditioning unit. 3,782,463, Cl. 166-68.000.

Panettieri, Pietro. Safety impact switch device for motor vehicles. 3,783,211, Cl. 200-61.500.

Panfill, Harry, to Master Products Manufacturing Co. Stacked bellows and apparatus and method for manufacturing the same. 3,782,156, Cl. 72-59.000.

Panico, Richard, to Kenon Corporation. Apparatus for rapid curing of resinous materials. 3,782,889, Cl. 432-59.000.

Pankove, Jacques Isaac, to RCA Corporation. Electroluminescent semiconductor device capable of emitting light of three different wavelengths. 3,783,353, Cl. 317-235.00r.

Pantek Corporation, mesne: *See*—
Lee, Martin, 3,783,193.

Parfitt, Norman Leslie Cyril, to Coal Industry (Patents) Limited. Self-adjusting brakes. 3,782,511, Cl. 188-75.000.

Parker, Gordon M., to PPG Industries, Inc. Method of forming a flat coated surface. 3,783,004, Cl. 117-93.310.

Parker, James M.; and Rydin, Carl N., to Parkton Corporation. Lawn mower and auxiliary unit with control means. 3,782,085, Cl. 56-11.600.

Parker, Richard J., to United States of America, National Aeronautics and Space Administration. Method of making rolling element bearings. 3,781,958, Cl. 29-148.04a.

Parker, Robert, to United States of America, Atomic Energy Commission. Neutron-flux responsive switch. 3,783,285, Cl. 250-390.000.

Parker, Roy Percival: *See*—
Gore, William George; and Parker, Roy Percival, 3,783,334.

Parkins, Eversly V.: *See*—
Philibert, Robert A.; Polimine, Robert; and Parkins, Eversly V., 3,783,178.

Parkton Corporation: *See*—
Parker, James M.; and Rydin, Carl N., 3,782,085.

Passenheim, Wolfgang, to Swiss Aluminium Ltd. Method and apparatus for producing a stepped rim on a seamless can body. 3,782,315, Cl. 113-7.00a.

Passera, Franco Ugo. Physical training device. 3,782,721, Cl. 272-79.00d.

Patel, Jayantilal M., to Procter & Gamble Company, The. Aromatizing edible oils. 3,783,163, Cl. 426-221.000.

Patent-Treuhand-Gesellschaft fur elektrische Gluhlampen mbH: *See*—
Neumann, Gerhard M., 3,783,328.

Patterson, William L., to Adams-Russell Co., Inc. Coaxial connector. 3,783,321, Cl. 317-101.00r.

Pavkovich, John M., to Varian Associates. Computer assisted radiation therapy machine. 3,783,251, Cl. 235-151.000.

Pawson, Beverly Ann; and Saucy, Gabriel, to Hoffmann-La Roche Inc. 3,7,9,11-Tetramethyl-10-alkoxy or benzyloxy-trideca-2,7,11-trienoic acids and esters containing a 4 position triple or double bond. 3,783,141, Cl. 260-410.90r.

Payne, Paul E.: *See*—
Vilips, Viesturs Valentins; Lowey, Joseph; and Payne, Paul E., 3,783,194.

Peacher, Teddy J.: *See*—
Miller, Walter E., Jr.; Peacher, Teddy J.; Duke, Jimmy R.; and Sitton, Robert L., 3,782,667.

Pearson, Anthony: *See*—
Pearson, William Michael; and Pearson, Anthony, 3,783,085.

Pearson, William Michael; and Pearson, Anthony, to Bondina Limited. Protective materials. 3,783,085, Cl. 161-87.000.

Peck, James G., Jr., to PPG Industries, Inc. Mercury cathode electrolytic cells. 3,783,120, Cl. 204-219.000.

Pedersen, Hans Christian; and Nielsen, Erik, to Danfoss A/S. Electrical connecting arrangement for an encased refrigerating machine. 3,782,580, Cl. 220-4.00b.

Peerless of America, Incorporated: *See*—
O'Connor, Joseph M., 3,781,959.

Pelka, Walter: *See*—
Hafer, Karl-Heinz; Pelka, Walter; Karkutt, Reimund; and Frenyo, Pal, 3,782,777.

Pelz, Willibald: *See*—
Boie, Immo; Schulte, Walter; Pelz, Willibald; Nittel, Fritz; and Kunitz, Friedrich-Wilhelm, 3,782,956.

Pemberton, Ernest H.: *See*—
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Penberthy, Walter L., Jr.: *See*—
West, Robert C.; and Penberthy, Walter L., Jr., 3,782,470.

Pennwalt Corporation: *See*—
Mandell, Harry Creston, Jr., 3,782,898.

Pentel, Jerry: *See*—
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Penwarden, Kent A., to E-Systems, Inc. Vehicle locator system. 3,783,445, Cl. 340-24.000.

Per-Erik Pettersson: *See*—
Swallert, Sven Arild, 3,781,928.

Perdue, Roy D.; and Cohn, Morris I.; deceased (b Rosenberg, Elliot E.; executor), said Purdue assor. to Mica Trust. Method of making paper using a pigment comprising calcium sulfate particles embedded in silica gel particles. 3,783,096, Cl. 162-181.00a.

Pergament, Henry. Anti-skid traction devices. 3,782,439, Cl. 152-218.000.

Perkin-Elmer Corporation, The: *See*—
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Perkins, Brooks S., Incorporated: *See*—
Pink, David A., 3,781,934.

Perkins, Joseph R., III, to AMF Incorporated. Automatic grader. 3,782,544, Cl. 209-111.600.

Perr, Julius P., to Cummins Engine Company, Inc. Fuel injector. 3,782,864, Cl. 417-493.000.

Perrault, Jean: *See*—
Forster, Daniel Emile; and Perrault, Jean, 3,783,383.

Persson, Leif Gunnar: *See*—
Hansen, Bunde Knut; and Persson, Leif Gunnar, 3,782,597.

Peter, Richard: *See*—
DeFago, Raymond; Angliker, Hans-Joerg; Holzrichter, Herbert; Kneubuehler, Werner; and Peter, Richard, 3,782,896.

Peters, Dudley C. Battery truck. 3,782,750, Cl. 280-43.017.

Peters, Norman J., to DEC International Inc. Method for making cheese. 3,783,166, Cl. 426-491.000.

Petershack, Victor D., to Rex Chainbelt, Inc. Clipped-disc device for right-angle transfer. 3,782,527, Cl. 198-25.000.

Peterson, J. L.: *See*—
Scott, Dellie J., 3,782,688.

Peterson, John D.; and Bates, Walter E., to Bates, W. E., Engineering Co., Inc. Vapor lamp standby apparatus. 3,783,332, Cl. 315-91.000.

Peterson, Robert S.; Cook, John W.; and Bolkey, Harold B., to Westinghouse Electric Corporation. Automatic gauge control system for tandem rolling mill. 3,782,151, Cl. 72-9.000.

Peterson, Rodney J., to General Dynamics Corporation. Proportionate flow cryostat. 3,782,129, Cl. 62-56.000.

Petrellis, Panayotis C.: *See*—
Bonham, James A.; and Petrellis, Panayotis C., 3,782,939.

Petrolite Corporation: *See*—
Siess, Charles P., Jr., 3,782,472.

Petzetakis, Aristovoulos G. Composite synthetic-resin sheet material. 3,783,067, Cl. 156-163.000.

Peyrot, Jean-Pierre. Centering chuck. 3,782,740, Cl. 279-2.000.

Peyrot, Jean-Pierre. Gun for welding tubes on a tube plate. 3,783,230, Cl. 219-121.0eb.

Pfaff Industriemachinen GmbH: *See*—
Stockel, Wilhelm, 3,782,310.

Pfaff Industriemaschinen GmbH, Firma: *See*—
Mall, Gunther, 3,782,308.

Pfahnl, Arnold: *See*—
Keller, Harry Nevin; and Pfahnl, Arnold, 3,783,056.

Pfeifer, John. Combination expandable cutting and seating tool. 3,782,848, Cl. 408-156.000.

Pfeifer, Josef: *See*—
Kohn, Erwin; Bickl, Horst; Pfeifer, Josef; and Schrecke, Hans-Joachim, 3,782,820.

Pfister, Leo F.; and Rosenow, Darold K., to Conco Inc. Draft inducer. 3,782,303, Cl. 110-162.000.

Pfleiderer, Ernst, to Maschinenfabrik Augsburg-Nurnberg A.G. (M.A.N.). Cylinder-piston internal combustion engine and bearing construction therefor. 3,782,792, Cl. 308-23.000.

Pfyffer, Peter: *See*—
Wangi, Kurt Angst; and Pfyffer, Peter, 3,782,093.

Pharmacia Fine Chemicals AB: *See*—
Hjerten, Vilhelm Einar Stellan, 3,783,118.

Philadelphia Quartz Company: *See*—
Pierce, Richard H., 3,782,906.
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Philibert, Robert A.; Polimine, Robert; and Parkins, Eversly V., to General Signal Corporation. Expansion joint for connecting rigid conduit with grounding continuity. 3,783,178, Cl. 174-86.000.

Phillips Petroleum Company: *See*—
Beazer, Charles W., 3,782,581.
Hessert, James E., 3,782,467.
Hurst, Alan R.; and Mirasol, Salustiano S., 3,783,089.
Miles, John M.; and Sherk, Fred T., 3,783,138.
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Picker Corporation: *See*—
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Atlee, Zed J., 3,783,333.

Fulton, George L.; Gager, Robert M.; and Atlee, Zed J., 3,783,287.
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Pielkenrood, Jacob; Van Galen, Piet; and Van Nes, Johannes G., to Pielkenrood-Vinitex B.V. Assembly for separating a dust-free part from a space, and method for disinfecting the same. 3,782,265, Cl. 98-33.000.

Pielkenrood, Jacob, to Pielkenrood-Vinitex N.V. Separation device. 3,782,557, Cl. 210-521.000.

Pielkenrood-Vinitex B.V.: *See—*
Pielkenrood, Jacob; Van Galen, Piet; and Van Nes, Johannes G., 3,782,265.

Pielkenrood-Vinitex N.V.: *See—*
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Pierce, Richard H., to Philadelphia Quartz Company. Process for preparation of agglomerated hydrated alkali metal silicate glass particles. 3,782,906, Cl. 23-313.000.

Pierce, Stanely L., Jr.: *See—*
Burch, Daniel G.; Liang, Po-Lung; Pierce, Stanely L., Jr.; and Winn, William C., 3,782,186.

Pierson, Joseph E.; and Stookey, Stanley D., to Corning Glass Works. Products prepared from soluble silicate solutions. 3,782,982, Cl. 106-75.000.

Pikel, John H.: *See—*
Madsen, Ditlev P.; and Pikel, John H., 3,782,902.

Pile, Benjamin D., to United States of America, Army. Portable surgical lamp. 3,783,262, Cl. 240-1.400.

Pillsbury Company, The: *See—*
Galle, Edward L., 3,783,164.

Pink, David A., to Perkins, Brooks S., Incorporated. Dockboard. 3,781,934, Cl. 14-72.000.

Pinna, Sanford. Detector for locating veins in living bodies. 3,782,365, Cl. 128-2.00r.

Pitt, William V., 1/2 to Merit Company, The. Split lid casket. 3,781,948, Cl. 27-17.000.

Pittet, Alan O.; and Seitz, Eugene W., to International Flavors & Fragrances Inc. Flavoring compositions and processes. 3,782,973, Cl. 426-175.000.

Pittman, Robert W., to Texaco Inc. Method and apparatus for rotary drill testing. 3,782,190, Cl. 73-151.000.

Pladys, Nestor, to Soceite Anonyme dite: Societe Francaise des Petroles B.P. and Societe Anonyme dite: Soletanche. Liquid storage tank. 3,782,124, Cl. 61-.500.

Plamper, Gerhard R.; and Kaesgen, Juergen, to MTD Products Inc. Safety switch mechanism. 3,783,216, Cl. 200-161.000.

Platzke, Ronald N.; and Spedden, Henry Rush, to Kennecott Copper Corporation. Process for recovering volatilized metal oxides from gas streams. 3,783,158, Cl. 423-49.000.

Pless, John H. Drying of timber. 3,782,000, Cl. 34-9.500.

Plessey Handel und Investment A.G.: *See—*
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Plezer, Imre: *See—*
Gasser, Hermann; and Plezer, Imre, 3,782,617.

Ploppa, Jurgen; and Hadam, Wilhelm, to Stoll, H., and Company. Pulse generator for an electrical control system of a machine. 3,782,136, Cl. 66-75.000.

Plummer, Walter A. Flattened heat reactive tubing with expanded passage. 3,783,086, Cl. 161-126.000.

Plyatskovsky, Oskar Alexandrovich: *See—*
Kheifeis, Georgy Naumovich; Plyatskovsky, Oskar Alexandrovich; Yankovsky, Vladimir Mikhailovich; Akhmedov, Baba Abbas Ogly; Lange, Zelman Iosifovich; Golubev, Jury Vasieievich; Solomadina, Elizaveta Andreevna; Statnikov, Vladimir Mikhailovich; Ibragimov, Irafil Naftali Ogly; Guliev, Tagi Rza Ogly; and Porokhovnikov, Jury Zinovievich, 3,782,160.

PM Holding Co., mesne: *See—*
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Poland, William I. Pool table handling device. 3,782,748, Cl. 280-35.000.

Polaroid Corporation: *See—*
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Pollark, Gottfried: *See—*
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Polos, Constantine D. Self-drilling toggle bolt assembly. 3,782,238, Cl. 85-3.00r.

Polsfoss, Terrance E.: *See—*
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Polychrome Corporation: *See—*
Golda, Eugene; and Bown, Delos L., 3,782,952.

Pond, Chester C.: *See—*
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Pond, Robert W.: *See—*
Smith, Thomas R.; Pond, Robert W.; and Rivers, Richard D., 3,782,082.

Ponder & Best, Inc.: *See—*
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Potman, Richard E. J., to Westinghouse Electric Corporation. Control system and method for a reversed ball mill grinding circuit. 3,783,252, Cl. 235-151.100.

Potts, Matthew, to Lucas, Joseph, (Industries) Limited. Relief valve. 3,782,405, Cl. 137-110.000.

Powell, James B.; Yeiser, Beverly G.; and Lightner, Joseph R. Apparatus for transporting, unloading and processing live poultry. 3,782,398, Cl. 134-133.000.

Powell, John Ernest; and Richards, Peter Henry, to Triplex Safety Glass Company Limited. Production of toughened and bent glass sheets. 3,782,916, Cl. 65-104.000.

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Quinn, Peter T., to Honeywell Inc. Push button connector connecting cable with integral push button switch. 3,782,256, Cl. 95-11.50r.

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Roth, Shirley H., to Cities Services Company. Process for protecting a substrate with an aryl-sulfonamidotriazole intumescent agent. 3,783,017, Cl. 117-136.000.

Roth, Shirley H., to Cities Service Company. Process for protecting a substrate with an N⁴-triazolylaminoarylsulfonamide intumescent agent. 3,783,018, Cl. 117-136.000.

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Saffro, Dennis W. Root canal reversible stop. 3,781,996, Cl. 32-57.000.

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Sato, Chosei; Adachi, Takeshi; and Inoy, Hiroyuki, to Showa Denko Kabushiki Kaisha. Inter-cell bus bar connection means. 3,783,122, Cl. 204-279.000.

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Schiesterl, Gerhard; and Bibl, Josef, to Daimler-Benz Aktiengesellschaft. Steering lock in motor vehicles. 3,783,207, Cl. 200-44.000.

Schimkat, Harald, to Volkswagenwerk Aktiengesellschaft. Steering arrangement for vehicles, especially motor vehicles, with a steering servo mechanism. 3,782,490, Cl. 180-79.100.

Schindel, Arnold; and Wojtowicz, David, to Singer Company, The. Viscous deceleration damped incremental position motor. 3,783,312, Cl. 310-36.000.

Schindler, Walter; deceased (Blattner, Hans; and Gysin, Leonhard; executors), to Ciba-Giegy Corporation. Derivatives of dibenzo(B,F) pyrrolo (3,4-D)azepine as CNS-depressants. 3,783,161, Cl. 424-274.000.

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Schmidt, Verna Grace. Fire extinguisher. 3,782,475, Cl. 169-1.00r.

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Schmuck, Johann, to Motorenfabrik Hatz KG. Internal combustion engine. 3,782,344, Cl. 123-52.00m.

Schneider, Urs. Safety closure for a container. 3,782,608, Cl. 222-368.000.

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Soldan, Gerd. Lauter tub and method. 3,782,551, Cl. 210-179.000.
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Sollerud, Soren Elof Mauritz, to Maskin AB Selco. Apparatus for making food units. 3,782,270, Cl. 99-450.400.
Solomadina, Elizaveta Andreevna: *See—*
Kheifeis, Georgy Naumovich; Plyatskovsky, Oskar Alexandrovich; Yankovsky, Vladimir Mikhailovich; Akhmedov, Baba Abbas Ogly; Lange, Zelman Iosifovich; Golubev, Jury Vasicievich; Solomadina, Elizaveta Andreevna; Statnikov, Vladimir Mikhailovich; Ibragimov, Irafil Naftali Ogly; Guliev, Tagi Rza Ogly; and Porokhovnikov, Jury Zinovievich, 3,782,160.
Solomon, William H.; Davies, John R.; and Eorward, Carrel M., to Oliver Machinery Company. Method of applying halide and checking the same. 3,783,058, Cl. 156-64.000.
Solum, Dallas H., to Envirotech Corporation. Feed distribution means for vacuum filters. 3,782,555, Cl. 210-404.000.
Solvay & Cie: *See—*
Chauffoureaux, Jean, 3,783,011.
Soma, Ikuo; and Ando, Yujiro, to Canon Kabushiki Kaisha. Developing method for electrophotography. 3,783,352, Cl. 317-262.00h.
Soman, George O.: *See—*
Lawson, Jimmie Brown; Richardson, Edwin A.; and Soman, George O., 3,782,466.
Soodalter, Arnold. Dispensing machine for food products. 3,782,607, Cl. 222-249.000.
Sorensen, Robert P.; and Strombeck, Leo, to Anderson Bros. Mfg. Co. Apparatus for wrapping articles. 3,782,072, Cl. 53-229.000.
Soter, Ernest J., to United States of America, National Aeronautics and Space Administration. Modification of one man life raft. 3,781,933, Cl. 9-11.00a.
Soulier, Joel Henri Auguste. Device for adjusting the microwave energy applied to a band or a sheet to be treated in a resonant cavity furnace. 3,783,221, Cl. 219-10.550.
South African Inventions Development Corporation: *See—*
Kuhn, Stephanus Hendrik; Freeme, Charles Richard; Beulink, Rombout; and Basson, John Edgar Baron, 3,782,486.
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Southwire Company: *See—*
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Souza, Joseph Francis, to Shipley Company, Inc. Electroless nickel plating. 3,782,978, Cl. 106-1.000.
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Sparser, Frederick J. Pressure sensitive fluid injector and pogo stick utilizing same. 3,782,352, Cl. 123-139.0aj.
Spaulding, Richard A., to Eastman Kodak Company. Multi-color acoustooptic modulator. 3,783,185, Cl. 178-5.200.
Speaker Motion Systems, Inc.: *See—*
Wolbrink, David W., 3,782,531.
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Bobb, Lloyd J., 3,783,202.
Spedden, Henry Rush: *See—*
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Spence, Mack L. Method and apparatus for automatic ranging with variable power telescopic gun sight. 3,782,822, Cl. 356-21.000.
Spencer, Dudley W. C. Horseshoe. 3,782,473, Cl. 168-4.000.
Spencer, Harvey J.; and Wittkopf, Eugene W., to Kimberly-Clark Corporation. Folding apparatus. 3,782,714, Cl. 270-69.000.
Spencer, William H.; Dorius, John O.; and Brown, James D., to Trend Ceilings Systems Co. Expansion joint assembly for ceiling grid system. 3,782,055, Cl. 52-758.00d.
Speranza, George Phillip, to Jefferson Chemical Company, Inc. Rigid fire retardant polyurethane foam. 3,783,133, Cl. 260-2.5ar.
Sperry Rand Corporation: *See—*
Smith, Daniel Paul, Jr., 3,783,283.
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Spicer, Lyndon Reginald, to International Standard Electric Corporation. Fluted cable. 3,783,180, Cl. 174-110.00r.

Spichala, Paul, to Fichtel & Sachs AG. Hydraulic levelling apparatus for automotive vehicles and shut-off valve for the same. 3,782,755, Cl. 280-124.00f.

Spight, James S.: *See—*
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Spin Company: *See—*
Donnelly, Frank R., 3,782,636.

Spindelfabrik Suessen, Schurr, Stahlecker & Grill G.m.b.H.: *See—*
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Spitz, Melvin P. Connection device for adjustable bedframe. 3,781,930, Cl. 5-201.000.

Spohr, Albert R.: *See—*
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Spooner, Robert E. Shaft position and wear indicator switch device. 3,783,210, Cl. 200-61.400.

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Sprague, Roland E., to Sperry Rand Corporation. Fuser low voltage sensor for photocopy machine. 3,783,235, Cl. 219-216.000.

Sprenger, Gerhard E.: *See—*
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Spring Mills, Inc.: *See—*
Flowers, Thad T., 3,782,094.

Springer, Charles H. Apparatus for producing a laterally directed spray of fluid. 3,782,641, Cl. 239-598.000.

Spurgeon, Richard C. Texturing yarns by false twisting. 3,782,091, Cl. 57-34.0hs.

Squibb, E. R., & Sons, Inc.: *See—*
Czaplinski, Thomas V.; Bruno, Gerald A.; and Haney, Thomas A., 3,783,291.

St. Clair, Theodore A., to Textron, Inc. Temperature compensated rotary gas meter. 3,782,196, Cl. 73-254.000.

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Stahlecker, Fritz, to Spindelfabrik Suessen, Schurr, Stahlecker & Grill G.m.b.H. Spindle for spinning or twisting machines. 3,782,100, Cl. 57-135.000.

Stahlfeld, Donald L.: *See—*
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Stahlwerke Peine-Salzgitter, A.G.: *See—*
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Staley, A. E., Manufacturing Company: *See—*
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Larson, Roy F.; and Turner, Almerin W., 3,783,100.

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Standard Oil Company: *See—*
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Stanley, Robert K., to Textured Yarn Co., Inc., mesne. Method and apparatus for compressively crimping textile strands. 3,781,951, Cl. 28-1.600.

Stanley, Robert K. Textile treatment method and apparatus. 3,781,952, Cl. 28-1.600.

Stanley, Thomas Osborne, to RCA Corporation. High-density capacitive information records and playback apparatus therefor. 3,783,196, Cl. 179-100.10b.

Stanley Works, The: *See—*
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Stanny, Edward P.: *See—*
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Starr, James E., to Vishay Intertechnology, Inc. Strain multiplier. 3,782,182, Cl. 73-88.50r.

Stasiuk, Michael, to Versatile Manufacturing Ltd. Power transmission device. 3,782,224, Cl. 74-687.000.

State of Florida, Department of Citrus: *See—*
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Stegelman, Albert F., to Phillips Petroleum Company. Yarn processing apparatus. 3,781,953, Cl. 28-71.300.

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Steiner, Joseph. Clinch stud. 3,782,436, Cl. 151-41.730.

Steinwart, Johannes; and Bauder, Armin, to Audi NSU Auto Union Aktiengesellschaft and Wankel GmbH. Oil seal construction for rotary engines. 3,782,869, Cl. 418-142.000.

Stephens, Leonard J.; Granger, Derril D.; McCullagh, John S.; and Hagar, Donald K., to Rockwell international Corporation. Seat insert for butterfly-type valves. 3,782,684, Cl. 251-306.000.

Sternjakob, Rolf: *See—*
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Steuby, Thomas A. Valve. 3,782,410, Cl. 137-496.000.

Stevens, Simon, to U.S. Philips Corporation. Stretcher. 3,781,929, Cl. 5-81.00r.

Stevenson, William W., to Minnesota Mining and Manufacturing Company. Artificial roll-up field. 3,782,663, Cl. 242-55.000.

Stewart, Alice. Three-dimensional stichery ornaments, apparatus and method for making same. 3,781,954, Cl. 28-15.000.

Stiles, Denis Arthur: *See—*
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Stock, Hans Joachim: *See—*
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Stockel, Wilhelm, to Pfaff Industriemachinen GmbH. Sewing machine with equipment for sewing of edge-parallel seams. 3,782,310, Cl. 112-153.000.

Stockert, Heinz: *See—*
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Stockmann, Helmut: *See—*
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Stocton, Paul M.: *See—*
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Stoliar, Arthur P.; and Brown, Richard T., Jr., to Sperry Rand Corporation. Apparatus and method for measuring extinction coefficient of an atmospheric scattering medium. 3,782,824, Cl. 356-103.000.

Stoll, H., and Company: *See—*
Ploppa, Jurgen; and Hadam, Wilhelm, 3,782,136.

Stoltz, Andries Johannes, to Morris Limited. Apparatus for positioning bricks. 3,782,047, Cl. 52-749.000.

Stone & Webster Engineering Corporation: *See—*
Hayward, Gardner L.; and Meilun, Edwin C., 3,783,126.

Stone, Charles D.: *See—*
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Stone, Henry Dermott, to U.S. Philips Corporation. Image intensifiers and the like. 3,781,979, Cl. 29-592.000.

Stone, Julian, to Bell Telephone Laboratories, Incorporated. Method for splicing liquid-core optical fibers. 3,783,065, Cl. 156-158.000.

Stookey, Stanley D.: *See—*
Pierson, Joseph E.; and Stookey, Stanley D., 3,782,982.

Stooksberry, Franklin D.: *See—*
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Storz, Karl. Endoscope with irrigation means. 3,782,369, Cl. 128-7.000.

Stoveken, Wayne E.: *See—*
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Stoveken, Wayne E., 30% to Milovich, Dimitrije. Snow surfboard. 3,782,745, Cl. 280-18.000.

Stradco, Inc.: *See—*
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Strasbaugh, Ray Howard. Lens grinding and polishing units. 3,782,042, Cl. 51-58.000.

Straut, Harold J., Jr.; and Weber, Raymond E. Spool and sleeve pneumatic accelerometer. 3,782,207, Cl. 73-515.000.

Street, Thomas R., Jr.: *See—*
Nalooka, Edward C.; and Street, Thomas R., Jr., 3,782,221.

Streit, James L. Lesson selector element controlled device for presenting visual and audio lessons and receiving recorded answers on a sound track. 3,782,007, Cl. 35-8.00a.

Stretton, Joseph Blake; and Borachok, William, to Textron, Inc. Brush cutter. 3,781,991, Cl. 30-276.000.

Strohbeck, Gotthilf, to Bosch, Robert, G.m.b.H. Vibratory compactor. 3,782,693, Cl. 259-1.000.

Strohschneider, Walter, to Zellweger AG. Method and apparatus for controlling a light source of an optical reader mechanism. 3,783,273, Cl. 250-223.000.

Strom, Thomas N.: *See—*
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Strombeck, Leo: *See—*
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Strong-Robinette Bag Company, Inc.: *See—*
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Stuelpnagel, John C., to Westinghouse Electric Corporation. Onboard calibration and test of airborne inertial devices. 3,782,167, Cl. 73-1.00e.

Sturek, James S. Camper tie-down system. 3,782,774, Cl. 296-23.0mc.

Suganuma, Yoshiyasu: *See—*
Karube, Soichi; Hamada, Yoshio; and Suganuma, Yoshiyasu, 3,783,440.

Sugaya, Inawo: *See—*
Hiruma, Kenji; and Sugaya, Inawo, 3,781,983.

Sugden, Harry, Jr., to Emerson Electric Co. Parity check for turbine meter electronic counting instrumentation or the like. 3,783,248, Cl. 235-92.0fl.

Sugimoto, Noboru; and Ohneda, Shoichi, to Minolta Camera Kabushiki Kaisha. Objective lens for television cameras. 3,783,191, Cl. 178i7.920.

Sullivan, Donald P.: *See—*
Walters, David W.; Heeks, Robert E.; and Sullivan, Donald P., 3,782,960.

Sumitimi Jukikai Kogyo Kabushiki Kaisha: *See—*
Ono, Kuniharu; Kamae, Tsutomu; Takahashi, Kinzo; and Miyatake, Masao, 3,783,344.

Summerfield, William F., to Mattel, Inc. Selectable message voice unit. 3,782,732, Cl. 274-9.0ra.

Summers, James J.: *See—*
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Sun Chemical Corporation: *See—*
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Sun Research and Development Co.: *See—*
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Sunbeam Corporation: *See—*
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Sundby, Gustav B., to Rockwell International Corporation. Articulated railway truck swinging bolster. 3,782,294, Cl. 105-182.00r.

Sunderman, Lavern C. Automatic loading and unloading bale wagon. 3,782,570, Cl. 214-519.000.

Sundstrand Data Control Inc.: *See—*
Eide, Melvin O.; and Clark, Donald E., 3,783,374.

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Svilans, Olgerts Janis. Device for air and fluid acceleration and method of making same. 3,782,857, Cl. 416-236.000.

Swain, Kenneth W.; and Belcher, Richard A., to Chase-Shawmut Company, The. Low-voltage fuse with blown fuse indicator. 3,783,428, Cl. 337-148.000.

Swallert, Sven Arild, to Per-Erik Pettersson. Device for raising the head end and/or foot end of a bed. 3,781,928, Cl. 5-68.000.

Swartz, George Allan; and Chamberlain, Richard Earl, to RCA Corporation. Encapsulated semiconductor device assembly. 3,783,348, Cl. 317-234.00r.

Swartz, Karl M.: *See—*
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Sweet, David L.: *See—*
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Sweet, Phillip J.; Hamlet, Buck G.; and Sweet, David L., to American Carrier Equipment. Pneumatic suspension unit. 3,782,753, Cl. 280-124.00f.

Swenson, Donald R.; and Rich, P. J. Pill box having safety sliding closure. 3,782,584, Cl. 220-41.0.

Swenson Spreader & Mfg. Co.: *See—*
Herman, John R., 3,782,634.

Swetlitz, Myron; and Richard, James A., to Westinghouse Electric Corporation, mesne. Can opener. 3,781,989, Cl. 30-4.00r.

Swift, Samuel C.: *See—*
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Swiss Aluminium Ltd.: *See—*
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Swozil, Adolf, to Sigri Elektrographit GmbH. Heat exchanger with nests of tubes. 3,782,450, Cl. 165-81.000.

Symmes, Eliot N., to American Clinic, Inc. Means and methods to assist people in building up an aversion to undesirable habits. 3,782,006, Cl. 35-22.00r.

Tajima, Tatsuya: *See—*
Arai, Atsuaki; Ohkubo, Kinji; Tajima, Tatsuya; Tanaka, Mitsugu; and Tutiya, Yosinori, 3,782,946.

Takagi, Akira: *See—*
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Takahashi, Katsutoshi; and Takase, Masanori, to Dainippon Ink and Chemicals, Incorporated. Photosensitive composition comprising polyurethane prepolymer. 3,782,961, Cl. 96-115.00r.

Takahashi, Kinzo: *See—*
Ono, Kuniharu; Kamae, Tsutomu; Takahashi, Kinzo; and Miyatake, Masao, 3,783,344.

Takahashi, Osamu; and Ogasawala, Nobuhico, to Hitachi, Ltd. Flywheel magneto having trigger generator for igniting engine. 3,783,315, Cl. 310-74.000.

Takahashi, Susumu, to Sansui Electric Co. Ltd. Decoder for use in matrix four-channel system. 3,783,192, Cl. 179-1.0gq.

Takano, Yukio: *See—*
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Takase, Masanori: *See—*
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Takase, Takashi; Hayashi, Tsunekazu; and Saitoh, Hirokazo, to Mitsuboshi-Sangyo Co., Ltd. Method for preparing water-proof asphalt materials. 3,783,000, Cl. 117-21.000.

Takimoto, Hisashi; Minoda, Minoru; and Takagi, Akira, to Fuji Photo Film Co., Ltd. Method of coating both surfaces of a web. 3,782,995, Cl. 117-34.000.

Tally Corporation: *See—*
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Talmage, Charles Robert: *See—*
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Tanizaki, Hiroshi, to Yamamizu Shoji Kabushiki Kaisha. Method and apparatus for browning exterior surfaces of foodstuff in an electronic range. 3,783,220, Cl. 219-10.550.

Tarshis, Lemuel A., to General Electric Company. Rapid solidification to improve the oxidation resistance of directionally solidified eutectic alloys. 3,783,033, Cl. 148-32.000.

Tarui, Yasuo; Denda, Seiichi; Baba, Harutsune; and Komimiya, Yasuo, to Industrial Science and Technology, Minister of International Trade and Industry, Agency of. Method of manufacturing integrated circuits. 3,783,228, Cl. 219-121.0em.

Tateda, Koichi, to Sharp Kabushiki Kaisha. Air cooled microwave cooking oven and door. 3,783,219, Cl. 219-10.550.

Tatsutomi, Yasuo; and Yoshimura, Shigetake, to Toyo Kogyo Co., Ltd. Intake system for internal combustion engine. 3,782,346, Cl. 123-97.00b.

Tawil, Joseph N.: *See—*
Hamilton, Fenton D.; Glickman, Richard B.; Hartz, George R.; and Tawil, Joseph N., 3,783,264.

Taylor, John, to Gordon Johnson-Stephens Limited. Poultry processing machine and method. 3,781,945, Cl. 17-11.000.

Taylor, John H., to Westinghouse Electric Corporation. Circuit breaker tripping device operable from a low energy tripping signal. 3,783,422, Cl. 335-174.000.

Taylor, Thomas D.; and Bredlow, Harvey F., said Taylor assor. to Graham-White Manufacturing Company and said Bredlow assor. to Graham-White Sales Corporation. Heat dissipating encapsulated semi-conductor assembly. 3,783,345, Cl. 317-23.0ar.

TDK Electronic Company: *See—*
Osada, Hisasi; and Akino, Tadaharu, 3,783,417.

Technology Precision Electrical Discharge Works, Institute of: *See—*
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Teel, William A. Dismountable vehicle rope barrier. 3,782,766, Cl. 293-1.000.

Tehalit Kunststoffwerk GmbH, Firma: *See—*
Korr, Peter; Pollark, Gottfried; and Sternjakob, Rolf, 3,782,420.

Teichmann, Friedrich: *See—*
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Teikoku Kagaku Sangyo Kabushiki Kaisha: *See—*
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Tektronix, Inc.: *See—*
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Templebouough Rolling Mills Limited: *See—*
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Tenneco Inc.: *See—*
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Tenney, Kinwood P.: *See—*
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Terry, Rupert Douglas, to Johns-Manville Corporation. Method and apparatus for producing fibrous tubular articles. 3,783,069, Cl. 156-184.000.

Tetronics Research and Development Company Limited: *See—*
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Texaco Inc.: *See—*
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Texas Instruments, Inc.: *See—*
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Chmura, William J.; and Catlin, Kenneth A., 3,782,794.
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Textured Yarn Co., Inc., mesne: *See—*
Stanley, Robert K., 3,781,951.

Thams, Hans. Apparatus for making pairs of profiled interfitting frames of plastic. 3,782,678, Cl. 249-129.000.

Thetford Corporation: *See—*
Brodhead, Albert S., 3,783,078.

Thiel, Peter H.; and Santilli, James N., to Westinghouse Electric Corporation. Indicating fuse having improved deionizing muffler construction. 3,783,342, Cl. 317-103.000.

Thien, Gerhard; Skatsche, Othmar; and Fachbach, Heinz, to List, Hans. Internal combustion engine in a sound-proof casing. 3,782,496, Cl. 181-33.00k.

Thomas, Ernest Derek Reginald, to Hawker Siddeley Aviation Limited. Fatigue sensors. 3,782,178, Cl. 73-88.50r.

Thomas Industrial Gases, Inc.: *See—*
Seeman, Thomas A., 3,783,013.

Thomas, Robert E. Extendible vehicle light mount. 3,783,267, Cl. 240-57.000.

Thomassen & Drijver-Verblifa N.V.: *See—*
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Thompson, Robert E. S. Process for recovering forest product plant wastes. 3,783,128, Cl. 210-27.000.

Thompson, Thomas C.; Center, John L.; and Stocton, Paul M., to Vicra Sterile, Inc. Winged infusion holding device with thermoplastic elastomeric body. 3,782,383, Cl. 128-214.000.

Thompson, Wallace M. Apparatus for continuously producing blocks from scrap metal. 3,782,274, Cl. 100-95.000.

Thomson-CSF: *See—*
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Thorson, Sheldon E. Offset tubular stilts with underlying height adjustable footrest supports. 3,782,720, Cl. 272-70.001.

Thune, Gerald E. Safety arms for trailer hitch. 3,782,759, Cl. 280-457.000.

Tielborg, Bernard P.: *See—*
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Timmermans, Claus Jurgen. Surgical suction jar. 3,782,384, Cl. 128-277.000.

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Tinchon, Jacques: *See—*
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Tindal, Ian, to Bechtel International Corporation. Apparatus for threading a tendon through a sheath. 3,782,690, Cl. 254-105.000.

Tiraspolsky, Wladimir; and Rouviere, Roger Francois. Shaft assembly. 3,782,838, Cl. 403-32.000.

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Tobey, Hubert E.; Hood, John W.; and Irvin, Dee L., to International Telephone and Telegraph Corporation. Automatic pie apparatus. 3,782,271, Cl. 99-450.600.

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Tokushima, Tadao, to Nippon Gakki Seizo Kabushiki Kaisha. Method of producing semi-hard magnetic materials with a plurality of heating and cooling steps. 3,783,041, Cl. 148-121.000.

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Tomb, William H.; and Weetall, Howard H., to Corning Glass Works. Enzymes bound to carriers having a metal oxide surface layer. 3,783,101, Cl. 195-63.000.

Tomita, Tsutomu; and Mizukoshi, Masahiko, to Kao Soap Co., Ltd. Process for producing emulsified fats. 3,782,970, Cl. 426-363.000.

Tomiwa, Hiroshi, to Matsuo Electric Company, Limited. Method of manufacturing chip-shaped solid state electrolytic capacitors. 3,781,976, Cl. 29-583.000.

Tomlinson, Barbara L. Detachable and interchangeable combination wig and hat. 3,782,396, Cl. 132-53.000.

Tomozawa, Yoshiaki, to Nankai Tekko Co., Ltd. Bicycle wheel. 3,782,778, Cl. 301-9.0dn.

Toney, David, to West Virginia Armature Company. Mobile transfer carrier. 3,782,536, Cl. 198-233.000.

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Towne, Herbert; and Rapp, Harold. Solid-state switch. 3,783,274, Cl. 250-221.00r.

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Turk, Leonard G., to NRM Corporation. Care for tire molding machine. 3,782,871, Cl. 425-54.000.
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Hand, Patrick J. Temperature compensated digital inertial sensor. 3,782,205, Cl. 73-497.000.
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Van Der Gaast, Harry. Medicament injecting device. 3,782,380, Cl. 128-173.00h.

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Walles, Rodney A., to M & J Valve Company. Method and apparatus for calibrating and testing pressure responsive apparatus. 3,782,168, Cl. 73-4.00r.

Wallyn, Rene, to Societe du Caoutchouc Technique. Latch assembly. 3,782,765, Cl. 292-103.000.

Walter, Gustav, to Demag Aktiengesellschaft. Device for oscillating a continuous casting mold. 3,782,446, Cl. 164-260.000.

Walter, John L.; and Cline, Harvey E., to General Electric Company. Composite alloy for high temperature applications. 3,782,928, Cl. 75-134.00f.

Walters, David W.; Heeks, Robert E.; and Sullivan, Donald P., to Xerox Corporation. Direct-print light-developable emulsion containing silver halide grains sensitized on the surfaces with silver thiocyanate, iodide and gold compound. 3,782,960, Cl. 96-108.00.

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Wangi, Kurt Angst; and Pfyffer, Peter, to Maschinenfabrik Rieter AG. Apparatus for winding undrawn thread material onto a waste yarn take-up member of a draw-twisting sponge. 3,782,093, Cl. 57-34.500.

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Watson, John Merza, to Associated Electrical Industries Limited. Method and apparatus for charged particle spectroscopy. 3,783,280, Cl. 250-305.000.

Watson, Kenneth, to Westland Aircraft Limited. Power transmission systems. 3,782,223, Cl. 74-665.001.

Watt, Gordon James. Precision hole verification system. 3,782,171, Cl. 73-37.900.

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Weickhardt, Ludwig, to Sartorius-Werke GmbH. Weighing balances with parallelogram support formed by two parallel guide members. 3,782,485, Cl. 177-157.000.

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White, David J.; and Dion, Donald J., to Mobile Systems International, Inc. Human waste incinerator. 3,782,300, Cl. 110-8.00r.

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Williamson, William A., to Clark Equipment Company. Control system for differential hydrostatic steering. 3,782,488, Cl. 180-6.480.

Willim, Fritz; Schulz, Hans-Dieter; and Thorner, Hans Otto, to Concast AG. Continuous casting plant. 3,782,447, Cl. 164-281.000.

Wilska, Matti. Relatively movable valve actuator. 3,782,430, Cl. 141-362.000.

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Winckelhaus, Werner. System for securing an annular member to a shaft for torque transmission therebetween. 3,782,841, Cl. 403-373.000.

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Wolowodiuk, Walter; Anelli, John; and Dawson, Bruce Edgar, to United States of America, Atomic Energy Commission. Heat exchanger tube mounts. 3,782,455, Cl. 165-162.000.

Wolpin, Kermit, to Hit Sales Corporation. Fob-key-ring assembly. 3,782,150, Cl. 70-459.000.

Wolter, Heinz, to Voss, Josef, KG., Firma. Steering-lock, particularly for automotive vehicles. 3,782,145, Cl. 70-186.000.

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Woodbridge, David D. Apparatus and method for converting wave energy into electrical energy. 3,783,302, Cl. 290-42.000.

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Wycoff, Keith H. High speed selective calling communication system having low drain receiver. 3,783,384, Cl. 325-55.000.

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Yao, Shi-Kuang, to GAF Corporation. Novel tetranuclear methine dyes, processes for preparing the same, and electrophotographic systems and silver halide emulsions containing the same. 3,782,935, Cl. 96-1.700.

Yarrington, James Clifford, to International Business Machines Corporation. Mechanical motion retarding means. 3,782,506, Cl. 188-1.00b.

Yasuda, Norio, to Sega Enterprises Kabushiki Kaisha. Sinking vessel simulation apparatus. 3,782,728, Cl. 273-101.002.

Yatsuo, Tsutomu; and Ogawa, Takuzo, to Hitachi, Ltd. Thyristor device. 3,783,350, Cl. 317-235.00r.

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Young, Philip, to United Aircraft Corporation. Lubrication means. 3,782,500, Cl. 184-64.000.

Younkin, James R.; and Nixon, John M., to Edo-Aire Mitchell Industries, Inc. Light responsive sensor system. 3,783,277, Cl. 250-237.00r.

Yount, Robert H. One man holder for vehicles doors, bumpers, and the like during repair thereof. 3,782,713, Cl. 269-297.000.

Yousch, Thomas. Screw conveyor coil wiper. 3,782,535, Cl. 198-229.000.

Zahid, Abduz, to Green Hydraulics, Inc. Pressure pulse dampener device. 3,782,418, Cl. 138-26.000.

Zajac, Bruno G., to Conaar Corporation. Coin controlled meter construction. 3,782,519, Cl. 194-83.000.

Zakaras, Anthony E., to Simmons Company. Motor operated bed having low leakage current. 3,781,927, Cl. 5-67.000.

Zarges, Walther. Collapsible receptacle. 3,782,579, Cl. 220-4.00f.

Zeimet, Heinrich; Rentel, Alfred; and Montz, Horst, to Seitz-Werke G.m.b.H. Device for shutting off the return gas line of counterpressure filling elements of multi-chamber vessel filling machines. 3,782,427, Cl. 141-39.000.

Zellweger AG: *See*—
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Zembaty, Stanley A., to General Electric Company. Meter dial with mirror image portion. 3,782,324, Cl. 116-129.00t.

Zeppenfeld, Gisela, to Ve Textilkombinat Cottbus. Process for the radiation treatment of polyethylene. 3,783,115, Cl. 204-159.200.

Zetterlund, Uno, to Allmanna Svenska Elektriska Aktiebolaget. Layer winding for electrical apparatus. 3,783,427, Cl. 336-206.000.

Ziegler, William H., to United States of America, Army. Automatic azimuth recovery system for cannons. 3,782,243, Cl. 89-37.00c.

Ziemek, Gerhard; and Scheffler, Ernst, to Kabel- und Metallwerke Gutehoffnungshutte Aktiengesellschaft. Method of making a superconductor. 3,781,982, Cl. 29-599.000.

Zimmermann, Heinrich, to Dual Gebruder Steidinger, Firma. Console for record players. 3,782,801, Cl. 312-284.000.

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Zsamboky, Leslie: *See*—
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Zucconi, Homer R. Keg tapping assembly. 3,782,609, Cl. 222-394.000.

Zura, Borys: *See*—
Schaap, Sanford; and Zura, Borys, 3,782,046.

Zurcher, Robert S.: *See*—
Barnett, David L.; Rose, Stanley E.; and Zurcher, Robert S., 3,782,278.

Zyss, Thadeus B., 20% to Appleman, Milo Don, Jr. Method of producing cured low sodium meat products. 3,782,975, Cl. 426-281.000.

LIST OF DEFENSIVE PUBLICATIONS

APPLICANTS TO WHOM

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Published at the request of the applicant or owner in accordance with the Notice of Dec. 16, 1969, 869 O. G. 687.

Baker, Sara Z.: *See*—
Baker, William P., Jr., and Sahatjian. T918,005.

Baker, William P., Jr., deceased, late of Chadds Ford, by S. Z. Baker, executrix, and R. A. Sahatjian, said Sahatjian assignors to E. I. du Pont de Nemours and Co. Tractable aromatic poly(schiff bases). T918,005, 1–1–73, Cl. 260—72.5.

Battista, Mario A., L. E. Freed, R. S. Harbison, J. W. Nestork, J. R. Struk, and D. Tuman, to International Business Machines, Inc. Integrated circuit junction isolation structure. T918,007, 1–1–74, Cl. 317—235.

Brack, Karl, M. Ghafghaichi, and H. Wimpfheimer, to International Business Machines Corp. Integrated circuit structure electrically isolated by a combination of amorphous silicon walls and insulating PN junction. T918,008, 1–1–74, Cl. 317—235.

Chappel, William M., H. C. Fallon, G. Geortzel, and W. G. Strohm, to International Business Machines Corp. Program generator for branching questionnaire. T918,004, 1–1–74, Cl. 340—172.5.

Du Pont de Nemours, E. I., and Co.: *See*—
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Fallon, Hugh C.: *See*—
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Freed, Larry E.: *See*—
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Freeman, Emma J.: *See*—
Sherwin, Ernest R., Luckadoo, and Freeman. T918,003.

Gambino, Giuliano: *See*—
Wrye, Robert G., and Gambino. T918,009.

Geortzel, Gerald: *See*—
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Ghafghaichi, Majid: *See*—
Brack, Karl, Ghafghaichi, and Wimpfheimer. T918,008.

Gray, Theodore F., Jr., J. C. Weaver, and M. A. McCall. Flame retardant molding compositions having desirable mechanical properties. T918,001, 1–1–74, Cl. 260—40.

Harbison, Richard S.: *See*—
Battista, Mario A., Freed, Harbison, Nestork, Struk, and Tuman. T918,007.

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Battista, Mario A., Freed, Harbison, Nestork, Struk, and Tuman. T918,007.

Knoth, Eugene E. Automatic system for printing information on the trailing end of continuously transported articles. T918,002, 1–1–74, Cl. 101—41.

Luckadoo, Bobby M.: *See*—
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Macalusa, Carroll J.: *See*—
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Battista, Mario A., Freed, Harbison, Nestork, Struk, and Tuman. T918,007.

Sahatjian, Ronald A.: *See*—
Baker, William P., Jr. T918,005.

Schramm, James N., C. J. Macalusa, and R. C. Schumann, Jr. Method of securing stacked polyolefin containers against slipping. T918,006, 1–1–74, Cl. 117—94.

Schumann, Robert C., Jr.: *See*—
Schramm, James N., Macalusa, and Schumann. T918,006.

Sherwin, Ernest R., B. M. Luckadoo, and E. J. Freeman. Antioxidant compositions. T918,003, 1–1–74, Cl. 426—181.

Strohm, William G.: *See*—
Chappell, William M., Fallon, Geortzel, and Strohm. T918,004.

Struk, James R.: *See*—
Battista, Mario A., Freed, Harbison, Nestork, Struk, and Tuman. T918,007.

Tuman, Daniel: *See*—
Battista, Mario A., Freed, Harbison, Nestork, Struk, and Tuman. T918,007.

Weaver, James C.: *See*—
Gray, Theodore F., Jr., Weaver, and McCall. T918,001.

Wimpfheimer, Hans: *See*—
Brack, Karl, Ghafghaichi, and Wimpfheimer. T918,008.

Wrye, Robert G., and G. Gambino. Method for producing a high stretch textured polyester yarn for package dyeing. T918,009, 1–1–74, Cl. 57—157.

LIST OF REISSUE PATENTEES

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Adler, Stanford L., to Technicon Corp. Apparatus for the automatic determination of the coagulation, aggregation and or fluocculation, or the like, rates or fluids, and novel reaction intensifying agent for use therewith. Re. 27,866, 1–1–74, Cl. 23—253.

Asahi Toy Co., Ltd.: *See*—
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Baker, Robert G., and S. R. Rosen, to Nordson Corp. Applicator having a fixed module with static parts and a removable module with moving parts. Re. 27,865, 1–1–74, Cl. 222—504.

Davis, Steven J., and R. A. Liberman, to General DataComm Industries, Inc. Closed loop test method and apparatus for duplex data transmission modem. Re. 27,864, 1–1–74, Cl. 179—2.

Day, Ronald H., to Sargent Industries, Inc. Aspirator apparatus for bag inflation systems. Re. 27,860, 1–1–74, Cl. 417—184.

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Davis, Steven J., and Liberman. Re. 27,864.

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Porter, Dennis A. Re. 27,868.

Hansford, Rowland C.: *See*—
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Helfrey, Paul F., N. L. Kay, B. Peralta, and C. P. Reeg, to Union Oil Co. of California. Hydrocracking process. Re. 27,856, 1–1–74, Cl. 208—59.

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Helfrey, Paul F., Kay, Peralta, Reeg, and Hansford. Re. 27,857.

Kraus, Charles E. Motion transmission device. Re. 27,861, 1–1–74, Cl. 74—227.

Laughlin, Eugene W., by Trextron, Inc. Centrifugal clutch. Re. 27,858, 1–1–74, Cl. 74—230.17.

Liberman, Richard A.: *See*—
Davis, Steven J., and Liberman. Re. 27,864.

Matsushita Electric Industrial Co., Ltd.: *See*—
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Miura, Keiichiro, to Asahi Toy Co., Ltd. Toy car. Re. 27,859, 1–1–74. Cl. 46—206.

Mohan, William L.: *See*—
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Helfrey, Paul F., Kay, Peralta, Reeg, and Hansford. Re. 27,857.

Porter, Dennis A., to General Electric Co. DC shunt starter generator. Re. 27,868, 1–1–74, Cl. 290—31.

Reeg, Cloyd P.: *See*—
Helfrey, Paul F., Kay, Peralta, and Reeg. Re. 27,856.
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Rosen, Samuel R.: *See*—
Baker, Robert G., and Rosen. Re. 27,865.

Sargent Industries, Inc.: *See*—
Day, Ronald H. Re. 27,860.

Silchenstedt, Albert B. Means and method for locating shrimp and other marine animals. Re. 27,862, 1–1–74, Cl. 43—4.5.

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Helfrey, Paul F., Kay, Peralta, Reeg, and Hansford. Re. 27,857.

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Yano, Tadashi, and S. Oka, to Matsushita Electric Industrial Co., Ltd. Variable resistor of sliding type with switch activated by slider. Re. 27,863, 1–1–74, Cl. 338—198.

Years, Kenneth E., to Texas Instruments Inc. Radiation-sensitive camera shutter and aperture control systems. Re. 27,867, 1–1–74, Cl. 95—10.

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3,781,918

CLASS 4

7 3,781,919
85 3,781,920
110 3,781,922
161 3,781,921
172.15 3,781,925
213 3,781,923
228 3,781,926
251 3,781,924

CLASS 5

67 3,781,927
68 3,781,928
81R 3,781,929
201 3,781,930
337 3,781,931

CLASS 7

14.1R 3,781,932

CLASS 8

2 3,782,895
2.5 3,782,896
43 3,782,897
137 3,782,898
149.2 3,782,899

CLASS 9

11A 3,781,933

CLASS 13

1 3,783,167
9 3,783,168
10 3,783,169
18 3,783,170
34 3,781,935
35 3,783,171

CLASS 14

72 3,781,934

CLASS 15

3.17 3,781,936
21E 3,781,938
49R 3,781,937
76 3,781,939
104.8 3,781,940
246.5 3,781,942
339 3,781,941

CLASS 16

52 3,781,943
187 3,781,944

CLASS 17

11 3,781,945
44.1 3,781,946

CLASS 23

230R 3,782,900
253R Re.27,866
260 3,782,901
280 3,782,902
284 3,782,903
3,782,904
3,782,905
313 3,782,906

CLASS 24

81E 3,781,947

CLASS 27

17 3,781,948

CLASS 28

1SM 3,781,950
1.4 3,781,949
1.6 3,781,951
3,781,952
15 3,781,954
71.3 3,781,953

CLASS 29

25.35 3,781,955
95R 3,781,956
121R 3,781,957
148.4A 3,781,958
157.3B 3,781,959
3,781,960
194 3,782,907
195.5 3,782,908
196.2 3,782,909
200B 3,781,962
200P 3,781,961
201 3,781,963
203HM 3,781,964
401 3,781,965
3,781,966
420 3,781,968
430 3,781,967
445 3,781,969
446 3,781,970
470.1 3,781,971
509 3,781,972
526 3,781,973
568 3,781,974
583 3,781,975
3,781,976
584 3,781,977
589 3,781,978
592 3,781,979
596 3,781,980
597 3,781,981
599 3,781,982
611 3,781,983
624 3,781,984
629 3,781,985
630D 3,781,986

CLASS 30

2 3,781,987
3,781,988
4R 3,781,989
34.1 3,781,990
255 3,781,992
276 3,781,991

CLASS 32

35 3,781,994
57 3,781,996
66 3,781,993

CLASS 33

27F 3,781,995
143L 3,781,997
166 3,781,998
185R 3,781,999

CLASS 34

9.5 3,782,000
45 3,782,001
99 3,782,002
110 3,782,003
174 3,782,004

CLASS 35

8A 3,782,005
3,782,007
10.4 3,783,172
19A 3,782,008
22R 3,782,006
23R 3,782,009

CLASS 36

42 3,782,010
59R 3,782,011

CLASS 40

1.5 3,782,012
64R 3,782,014
124.2 3,782,013
130E 3,782,016
152 3,782,015
303 3,782,017

CLASS 42

1F 3,782,021
1M 3,782,018
70R 3,782,022
72 3,782,019

CLASS 43

4.5 Re.27,862
8 3,782,020
25 3,782,023
42.31 3,782,024
44.9 3,782,025
124 3,782,026

CLASS 44

40 3,782,910
63 3,782,911
66 3,782,912

CLASS 46

22 3,782,027
26 3,782,029
41 3,782,028
175R 3,782,030
202 3,782,032
206 Re.27,859
244R 3,782,031

CLASS 47

1 3,782,033

CLASS 48

202 3,782,913

CLASS 49

13 3,782,034
44 3,782,035
103 3,782,037
502 3,782,036

CLASS 51

6 3,782,038
33W 3,782,041
52R 3,782,040
58 3,782,042
124L 3,782,045
138 3,782,044
165.78 3,782,043
238R 3,782,046
250 3,782,039

CLASS 52

27 3,782,057
39 3,782,065
63 3,782,063
75 3,782,062
97 3,782,064
125 3,782,061
126 3,782,060
147 3,782,059
300 3,782,058
309 3,782,049
473 3,782,050
3,782,051
738 3,782,048
745 3,782,052
749 3,782,047
753J 3,782,053
758D 3,782,055
758F 3,782,056
758H 3,782,054

CLASS 53

14 3,782,066
28 3,782,067
64 3,782,068
67 3,782,069
184 3,782,070
191 3,782,071
229 3,782,072
384 3,782,073

CLASS 55

19 3,782,074
67 3,782,075
74 3,782,076
158 3,782,077
197 3,782,078
218 3,782,079
226 3,782,080
278 3,782,081
491 3,782,083
494 3,782,082

CLASS 56

10.5 3,782,084
11.6 3,782,085
344 3,782,086

CLASS 57

1R 3,782,087
34AT 3,782,092
34HS 3,782,088
3,782,090
3,782,091
34R 3,782,089
34.5 3,782,093
3,782,094
56 3,782,095
71 3,782,096
96 3,782,097
106 3,782,098
117 3,782,099
135 3,782,100

CLASS 58

23V 3,782,101
50R 3,782,102
3,782,103
3,782,104
90R 3,782,105

CLASS 60

24 3,782,106
39.2 3,782,108
39.28T 3,782,109
39.43 3,782,110
39.61 3,782,107
39.69 3,782,111
73 3,782,113
221 3,782,114
251 3,782,112
258 3,782,116
260 3,782,118
274 3,782,115
372 3,782,117
521 3,782,119
524 3,782,120
527 3,782,121
531 3,782,122
533 3,782,123

CLASS 61

.5 3,782,124
41A 3,782,125
3,782,126
50 3,782,127

CLASS 62

51 3,782,128
56 3,782,129
128 3,782,130
218 3,782,131
260 3,782,132
381 3,782,133
476 3,782,134

CLASS 64

20 3,782,135

CLASS 65

3 3,782,914
30 3,782,915
104 3,782,916

CLASS 66

75 3,782,136
192 3,782,137

CLASS 68

177 3,782,138

CLASS 70

81 3,782,139
124 3,782,140
146 3,782,141
164 3,782,144
170 3,782,142
186 3,782,145
232 3,782,146
276 3,782,147
278 3,782,148
362 3,782,143
455 3,782,149
459 3,782,150

CLASS 71

97 3,782,917
98 3,782,918

CLASS 72

9 3,782,151
3,782,152
3,782,153
12 3,782,154
14 3,782,155
37 3,782,158
59 3,782,156
60 3,782,159
71 3,782,157
201 3,782,160
239 3,782,161
250 3,782,162
3,782,163
274 3,782,164
391 3,782,165
462 3,782,166

CLASS 73

1E 3,782,167
4R 3,782,168
6 3,782,169
19 3,782,170
37.9 3,782,171
40.5R 3,782,172
56 3,782,173
57 3,782,174
61R 3,782,175
69 3,782,180
71.3 3,782,176
71.5U 3,782,177
73 3,782,179
86 3,782,181
88.5R 3,782,178
3,782,182
100 3,782,183
101 3,782,184
121 3,782,185
136R 3,782,186
141AB 3,782,188
141A 3,782,187
147 3,782,189
151 3,782,190
155 3,782,191
159 3,782,192
181 3,782,193
254 3,782,196
343B 3,782,195
343R 3,782,194
421R 3,782,197
421.5R 3,782,198
422R 3,782,200
434 3,782,199
455 3,782,201
3,782,202
457 3,782,217
468 3,782,203
492 3,782,204
497 3,782,205
515 3,782,206
3,782,207

CLASS 74

112 3,782,208
142 3,782,209
217B 3,782,210
227 Re.27,861
230.17C 3,782,211
230.17E Re.27,858
230.17F 3,782,213
230.3 3,782,212
331 3,782,214
364 3,782,216
410 3,782,215
491 3,782,218
531 3,782,219
579R 3,782,220
586 3,782,221
590 3,782,222
665L 3,782,223
687 3,782,224
720 3,782,225
821 3,782,226

CLASS 75

20F 3,782,919
37 3,782,920
51 3,782,921
67 3,782,922
122 3,782,923
122.5 3,782,924
124 3,782,925
129 3,782,926
134B 3,782,927
134F 3,782,928
143 3,782,929
204 3,782,930
224 3,782,931

CLASS 81

9.51 3,782,227

CLASS 82

20 3,782,228

CLASS 83

37 3,782,229
143 3,782,231
174.1 3,782,230
236 3,782,232
356.3 3,782,233
665 3,782,234
762 3,782,235

CLASS 84

397 3,782,236
470 3,782,237

CLASS 85

3R 3,782,238

CLASS 86

1A 3,782,239

CLASS 89

1J 3,782,240
7 3,782,241
11 3,782,242
37C 3,782,243

CLASS 90

9 3,782,244

CLASS 91

6.5 3,782,245
277 3,782,246
306 3,782,247
358A 3,782,248
411R 3,782,249
433 3,782,250

CLASS 92

63 3,782,251

CLASS 93

37R 3,782,252

CLASS 95

1R 3,782,253
10CE 3,782,254
10C Re.27,867
3,782,255
11.5R 3,782,256
3,782,258
19 3,782,257
31R 3,782,259
45 3,782,260
3,782,261
89R 3,782,262
3,782,263
93 3,782,264

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1.7 3,782,933
3,782,934
3,782,935
3 3,782,936
3,782,937
35.1 3,782,938
3,782,939
36 3,782,940
41 3,782,942
48HD 3,782,941
48R 3,782,943
3,782,944
66.3 3,782,945
3,782,946
67 3,782,947
73 3,782,948
76R 3,782,949
85 3,782,950
86P 3,782,951
93 3,782,952
94R 3,782,953
94 3,782,954
99 3,782,955
100 3,782,956
101 3,782,957
107 3,782,959
108 3,782,960
115R 3,782,961

CLASS 98

33 3,782,265
58 3,782,266

CLASS 99

410 3,782,267
421P 3,782,268
427 3,782,269
450.4 3,782,270
450.6 3,782,271
450.7 3,782,272

CLASS 100

50 3,782,273
95 3,782,274
98R 3,782,275

CLASS 101

56 3,782,276
76 3,782,277
93C 3,782,278
232 3,782,280
288 3,782,279
415.1 3,782,281

CLASS 102
16 3,782,282
23 3,782,283
27R 3,782,284
32 3,782,285
41 3,782,286
52 3,782,287
64 3,782,288
76R 3,782,289
3,782,290

CLASS 104
130 3,782,291
3,782,292
245 3,782,293

CLASS 105
182R 3,782,294
369B 3,782,295

CLASS 106
1 3,782,978
5 3,782,979
47R 3,782,958
57 3,782,980
73.5 3,782,981
75 3,782,982
88 3,782,983
90 3,782,984
97 3,782,985
110 3,782,986
271 3,782,987
282 3,782,988
285 3,782,989
287S 3,782,990
315 3,782,991
3,782,992

CLASS 108
101 3,782,296

CLASS 109
38 3,782,297

CLASS 110
1F 3,782,298
7R 3,782,299
8C 3,782,301
8R 3,782,300
3,782,302
162 3,782,303
173 3,782,304

CLASS 112
10 3,782,305
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77 3,782,307
121.15 3,782,308
121.29 3,782,309
153 3,782,310
158R 3,782,311
241 3,782,312
252 3,782,313

CLASS 113
1G 3,782,314
7A 3,782,315

CLASS 114
16R 3,782,316
52 3,782,317
207 3,782,318
235B 3,782,319

CLASS 115
12R 3,782,320
17 3,782,321

CLASS 116
63P 3,782,322
118R 3,782,323
129T 3,782,324

CLASS 117
4 3,782,994
21 3,783,000
34 3,782,995
45 3,782,996
49 3,782,997
66 3,782,998
71R 3,782,999
72 3,783,001
75 3,783,002
76P 3,783,003
93.31 3,783,004
3,783,006
95 3,783,007
100A 3,782,993
3,783,008
106A 3,783,009
106R 3,783,010
3,783,011
107 3,783,012
127 3,783,013
130R 3,783,014
136 3,783,015
3,783,016
3,783,017
3,783,018
201 3,783,019
206 3,783,020
212 3,783,005
3,783,021
215 3,783,022
237 3,783,023

CLASS 118
58 3,782,325
67 3,782,326
100 3,782,327
118 3,782,328
215 3,782,329
325 3,782,330

CLASS 119
5 3,782,331
51.13 3,782,332
52R 3,782,333
54 3,782,334

CLASS 122
13A 3,782,335
379 3,782,336

CLASS 123
8.05 3,782,337
8.23 3,782,340
8.45 3,782,341
32EA 3,782,338
3,782,339
41.69 3,782,342
52M 3,782,343
3,782,344
90.35 3,782,345
97B 3,782,346
119A 3,782,348
119R 3,782,347
122D 3,782,349
136 3,782,351
139AJ 3,782,352
148E 3,782,353
179K 3,782,350
182 3,782,354
185B 3,782,355
185C 3,782,356
196S 3,782,357
198DC 3,782,358

CLASS 124
48 3,782,359

CLASS 126
19R 3,782,360
43 3,782,361

CLASS 128
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2R 3,782,363
3,782,365
2T 3,782,364
2.06A 3,782,367
2.08 3,782,368
2.1R 3,782,366
7 3,782,369
20 3,782,370
28 3,782,371
76B 3,782,372
92BB 3,782,374
92EB 3,782,373
130 3,782,376
132 3,782,377
133 3,782,378
152 3,782,379
158 3,782,375
173H 3,782,380
214R 3,782,382
214 3,782,383
214.4 3,782,381
277 3,782,384
281 3,782,385
303.1 3,782,386
305.5 3,782,387
348 3,782,388
419D 3,782,389
595 3,782,390

CLASS 131
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17R 3,782,391
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CLASS 132
9 3,782,395
53 3,782,396
84A 3,782,397

CLASS 134
133 3,782,398

CLASS 135
14D 3,782,399

CLASS 136
6A 3,783,024
76 3,783,025
86A 3,783,026
86C 3,783,027
3,783,028
89 3,783,029
134P 3,783,030
237 3,783,031

CLASS 137
39 3,782,400
68 3,782,401
81 3,782,402
86 3,782,403
101 3,782,404
110 3,782,405
202 3,782,406
317 3,782,407
344 3,782,408
355.17 3,782,409
467 3,782,411
496 3,782,410
514 3,782,412
565 3,782,413
575 3,782,414
590 3,782,416
596.18 3,782,415
625.17 3,782,417

CLASS 138
26 3,782,418
109 3,782,419
156 3,782,420

CLASS 139
122W 3,782,421
127P 3,782,422
166 3,782,423

CLASS 140
92.2 3,782,424
103 3,782,425
123.6 3,782,426

CLASS 141
39 3,782,427
115 3,782,428
359 3,782,429
362 3,782,430

CLASS 144
144.5 3,782,431
323 3,782,433

CLASS 145
50E 3,782,432

CLASS 148
3 3,783,032
6.14R 3,783,035
6.2 3,783,034
9R 3,783,036
11.5R 3,783,037
31.5 3,783,038
3,783,039
32 3,783,033
36 3,783,040
121 3,783,041
153 3,783,042
156 3,783,043
175 3,783,044
187 3,783,045
3,783,046
3,783,047
3,783,048
188 3,783,049
3,783,050
189 3,783,051
191 3,783,052

CLASS 149
19.9SS 3,783,055
41 3,783,053
109 3,783,054

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52R 3,782,435

CLASS 151
41.73 3,782,436
49 3,782,437

CLASS 152
209R 3,782,438
218 3,782,439
330 3,782,440
356 3,782,441

CLASS 156
3 3,783,056
49 3,783,057
64 3,783,058
3,783,059
69 3,783,060
73 3,783,061
82 3,783,062
137 3,783,063
158 3,783,065
159 3,783,064
161 3,783,066
163 3,783,067
173 3,783,068
184 3,783,069
211 3,783,070
217 3,783,071
230 3,783,073
244 3,783,072
291 3,783,074
309 3,783,075
364 3,783,076
446 3,783,077
499 3,783,078
502 3,783,079
514 3,783,080

CLASS 157
1.26 3,782,442

CLASS 160
22 3,782,443
235 3,782,444

CLASS 161
7 3,783,081
37 3,783,082
38 3,783,083
45 3,783,084
87 3,783,085
126 3,783,086
127 3,783,087
160 3,783,088
166 3,783,089
3,783,090
168 3,783,091
170 3,783,092
3,783,093
196 3,783,094

CLASS 162
16 3,783,095
181A 3,783,096
358 3,783,097

CLASS 164
52 3,782,445
260 3,782,446
281 3,782,447

CLASS 165
16 3,782,448
32 3,782,449
38 3,782,451
81 3,782,450
135 3,782,452
138 3,782,453
144 3,782,454
162 3,782,455
164 3,782,456
165 3,782,457

CLASS 166
.5 3,782,458
3,782,459
3,782,460
68 3,782,463
72 3,782,461
88 3,782,462
224 3,782,464
248 3,782,465
254 3,782,466
261 3,782,467
267 3,782,468
279 3,782,469
303 3,782,470
3,782,472
307 3,782,471

CLASS 168
4 3,782,473

CLASS 169
1A 3,782,476
1R 3,782,475
2R 3,782,474

CLASS 171
12 3,782,477

CLASS 172
4.5 3,782,478
26.5 3,782,479
110 3,782,480
265 3,782,481
381 3,782,482

CLASS 173
15 3,782,483
43 3,782,484

CLASS 174
35GC 3,783,173
35MS 3,783,174
48 3,783,175
65R 3,783,176
86 3,783,178
87 3,783,177
110R 3,783,180
121A 3,783,179
142 3,783,181
145 3,783,182

CLASS 177
157 3,782,485
210 3,782,486
245 3,782,487

CLASS 178
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5.2 3,783,185
5.4BD 3,783,184
5.4HE 3,783,186
6 3,783,187
6.8 3,783,188
3,783,189
7.2 3,783,190
7.92 3,783,191

CLASS 179
1GQ 3,783,192
2DP Re.27,864
3,783,194
2A 3,783,193
16AA 3,783,198
28 ,783,195
100.1DR ,783,199
100.1B 3,783,196
100.2T 3,783,200
100.2Z 3,783,197
107E 3,783,201
111R 3,783,202

CLASS 180
6.48 3,782,488
3,782,489
79.1 3,782,490
79.2R 3,782,491
82C 3,782,492
114 3,782,493
124 3,782,494

CLASS 181
33G 3,782,495
33K 3,782,496
33 3,782,497

CLASS 182
119 3,782,498
230 3,782,499

CLASS 184
6.4 3,782,501
64 3,782,500

CLASS 187
9 3,782,502
3,782,503
29R 3,782,504

CLASS 188
1B 3,782,506
1C 3,782,505
2D 3,782,507
73.3 3,782,508
3,782,509
3,782,510
75 3,782,511
134 3,782,512
206R 3,782,513
296 3,782,514

CLASS 191
23 3,783,203

CLASS 192
56C 3,782,515
88A 3,782,516

CLASS 193
43R 3,782,517

CLASS 194
54 3,782,518
83 3,782,519

CLASS 195
1.1 3,783,098
2 3,783,099
31 3,783,100
63 3,783,101
66A 3,783,102
99 3,783,103
104 3,783,104
127 3,783,105
139 3,783,106

CLASS 197
1R 3,782,520
158 3,782,521

CLASS 198
20R 3,782,522
22R 3,782,523
24 3,782,525
25 3,782,527
31AA 3,782,526
33AA 3,782,524
36 3,782,528
41 3,782,529
127E 3,782,530
155 3,782,531
184 3,782,532
196 3,782,533
229 3,782,535
230 3,782,534
233 3,782,536

CLASS 200
5EB 3,783,204
5A 3,783,205
11TC 3,783,206
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50AA 3,783,208
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61.4 3,783,210
61.5 3,783,211
144B 3,783,213
144 3,783,212
153SC 3,783,214
153G 3,783,215
161 3,783,216

CLASS 202
160 3,783,107

CLASS 203
11 3,783,108

CLASS 204
1T 3,783,109
12 3,783,110
46 3,783,111
59R 3,783,112
106 3,783,113
149 3,783,114
159.2 3,783,115
164 3,783,116
180G 3,783,118
180R 3,783,117
192 3,783,119
219 3,783,120
243M 3,783,121
279 3,783,122

CLASS 206
.82 3,782,537
45.12 3,782,538

CLASS 208
59 Re.27,856
111 Re.27,857
3,783,123
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8 : 229,776
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U.S. DEPARTMENT OF COMMERCE
Frederick B. Dent, *Secretary*